SOUTHERN AERONAUTICS

Flight

Including MODERN AIRPORTS

December, 1945 25 cents

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SIKORSKY HELICOPTERS DON "CIVVIES"

The S-51, a four-place model and first of the new commercial Sikorsky helicopters, is built around the proved engineering features of the Sikorsky military helicopters . . . The same engineering leadership which produced America's first successful helicopters and sent America's only helicopters to war, is now concentrating on producing America's finest helicopters for peacetime air commerce.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

DEC 19 1945

Peace on Earth...

As once again dawns this hallowed hour which for centuries
has symbolized the recurrent hope of mankind for universal understanding,
we tender gratitude to those stout hearts who have given so much
that the radiance of this day shall not lose its luster.

We offer our sympathy to those whose dear ones remain but a memory ...
and we rejoice for those who have returned.

During the grim struggle to defend the ways of freedom,
we have built fighter planes whose records stand unmatched
and now, when all the men are out of all the fox holes all over the world,
it will be our sole aim to make aircraft whose purpose is to propagate the spirit of
peace on earth ... good will towards all men.

Alfred Marchev

PRESIDENT

REPUBLIC AVIATION CORPORATION

Farmingdale, Long Island, N. Y.

The Gift of New Horizons!

WHAT fun it is to break suddenly through the clouds and come upon those distant playlands you used to dream about!

Yes, flying the new SILVAIRE is personal flying at its best. That's because the SILVAIRE is all-metal—and built by Luscombe, the first to build all-metal light planes.

And the secret of your new SILVAIRE's *durability... streamlining and speed...all-round economy of operation* is this: Luscombe's master-skill at all-metal construction now given the further benefit of vast war production experience!

This new SILVAIRE—the crowning achievement of Luscombe's years of building all-metal beauties—is a stunning eyeful that flies as gracefully as a swallow.

Mail the coupon below for the recently published booklet "Your Postwar Companion of the Clouds." It pictures and describes in detail the new SILVAIRE—the ideal light plane for *your* business or hobby.

LUSCOMBE AIRPLANE CORPORATION • DALLAS 1, TEXAS • TRENTON 7, NEW JERSEY • U. S. A.

SILVAIRE

AMERICA'S FIRST ALL-METAL PERSONAL PLANE

BY LUSCOMBE

LUSCOMBE AIRPLANE CORPORATION
Sales Promotion Department A-21
Trenton 7, New Jersey

☐ Please tell me more about the SILVAIRE.

Name.....

Street.....City.....

Revving Up

Charles A. Lindbergh reportedly shot down a Jap fighter in the Southwest Pacific while demonstrating cruise control to 10th Air Force fighter pilots, according to a United Press account. He was a United Aircraft Corporation consultant and technical representative, apparently with civilian status, and was flying a P-38 to prove a new throttle-control method which almost doubled the fighter's range. Accompanying a formation to Balikpapan, Borneo, on October 19, 1944, he saw a Jap Zero attack a U. S. bomber and dived after the Zero. "One short burst from close in sent the Japanese plane twisting down in flames," the account stated. No Army confirmation has been given.

Some of the red tape handicapping air tourist traffic between Mexico and the U. S. has been slashed by CAA Administrator T. P. Wright, who has authorized CAA inspectors at border areas to issue permits for flights within the United States by foreign civil aircraft not carrying mail, cargo, or passengers for hire. Previously such permits were available only from Washington. Foreign purchasers of new aircraft will be issued permits authorizing flight through and out of the U. S. The ultimate goal, according to CAA, is to permit private or commercial non-scheduled flights of foreign civil aircraft into the U. S. without prior authorization from all nations granting reciprocal privileges to U. S. planes. Meanwhile, permits for charter and other non-scheduled commercial flights into the U. S. will continue to be issued through the Chief of the Aircraft Recordation Section, Civil Aeronautics Administration, Washington, D. C. Simplification of requirements for private aircraft crossing the border is being sought by the Rio Grande Valley Fliers Association, which has petitioned CAA to authorize CAA inspectors to clear international flights at ports of entry. W. Vernon Walsh of Harlingen is president of the group.

How a helicopter was flown half-way around the world in seventy-six hours to rescue five AAF pilots down in the India-Burma jungles, thus giving impetus to intensive helicopter development for widespread rescue work, has been revealed following SOUTHERN FLIGHT'S inquiry during preparation of a recently-published article analyzing Army 'copter training results. The time was January 17, 1945, and the scene was a Tenth Air Force base in Burma. Three little L-1's had been lost in attempts to rescue a quintet of AAF pilots down in the jungle behind Japanese lines. A priority radiogram was dispatched to AAF headquarters in Washington, detailing the plight and requesting a helicopter. The next night Wright Field had disassembled a Sikorsky YR-4, loaded it and five veteran helicopter men in a C-54, and the long flight to Burma was completed 76 hours later. But it was too late—all but one of the five fliers had been killed trying to penetrate the Jap lines, and he had been rescued. Another distress call was received, however, and the YR-4 was dispatched to rescue a wounded weather station man isolated high in the Naga hills. Nearest medi-

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SOUTHERN
Flight
Including MODERN AIRPORTS

Twelfth Year of Progress With Aviation

DECEMBER, 1945 VOL. XXIV. NO. 6

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yesterday's war pilots will be tomorrow's SPORTSMEN OF THE AIR

To thousands of young Americans who learned mastery of the air in Thunderbolts and Mustangs, Marauders and Liberators, the skies will always remain their favorite highway. In their personal lightplanes these sportsmen of tomorrow will range the skyways of the world. Old barriers of time and space will be forgotten as they fly North for a week-end's skiing or South for a Sunday's golf or fishing.

The same Humble-Esso Aviation products that served these fliers so well during war years will serve them equally well when they return to private flying.

For every type of plane from "flying boxcars" to Piper Cubs Humble-Esso laboratories have developed a custom-built fuel and lubricant. Thanks to our continuing research these aviation products will remain not only abreast but well in advance of the progress of aeronautical development.

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Yesterday Humble-Esso Aviation Products served the vital demands of war; today they serve equally well the needs of peace.

JUST AMONG OURSELVES

Editorials and Comment

BASIC ORGANIZATION

AN aviation wit recently observed that if an airplane dropped a wheel while flying over Keokuk, some goof would pick it up and start organizing the East Keokuk Aviation Association. Though spoken in jest the observation is apropos and the shoe fits. Aviation is cursed with too many organizations. In the past we haven't held out much hope for curing the disease. Today, however, it appears that the victim might recover.

The National Aeronautic Association is fast becoming the one centralized organization for all specialized and heterogeneous aviation groups through a militant policy of encouraging their affiliation. The most recent affiliation is that of the Flying Farmers Association. This policy will not only serve to strengthen the NAA but will provide new strength through unification of a majority of American civil aviation interests. Practical liaison and co-operation, heretofore lacking between a score or more aviation organizations, is now possible and should pay off handsomely in solving problems with organized, centralized action.

The National Aeronautic Association is the natural mother for the flock. During recent years, under wise and energetic leadership, NAA has staged a remarkable come-back, rising from its prewar status of a lethargic nonentity to a hard-hitting, representative and service organization aviation people are proud to belong to. It's true that NAA still has a long way to go. Its own leaders admit that fact. But the organization is well on its way, in the black and growing steadily in every section of the country.

Last month, NAA established a national air pilots division. This important decision bids fair to close up the last remaining gap which has separated the organization from its richest fountain-head of membership — the ranks of civilian pilots. Too often in the past, local NAA chapters were dominated by chamber of commerce people while the pilots and aviation users sat on the outside, looking in, frequently with boos and cat-calls. Establishment of the air pilots division in all probability will drive the final nail into the coffin of that unfortunate situation.

In these transitional times between war and peace, NAA is needed more than ever before. If the organization remains strong and becomes truly representative of all aviation interests, its value can not be appraised in terms of dollars and cents. During the next twelve months, important decisions will be made in Washington and in many states and municipalities affecting the future economic health of aviation. Many Federal, state and local politicians just recently have "discovered" aviation and their actions in the months to come will determine whether or not civil aviation will be permitted to grow naturally and speedily or be hamstrung with ill-advised, restrictive or short-sighted legislation, taxation and regulation.

One strong spokesman carries far more weight and influence than twenty or thirty small, impotent voices in the wilderness. And an organization with 150,000 paid-up members can function more effectively in keeping its members informed than a score of puny outfits who offer little more than nuisance value. The importance of aviation people receiving the *right information at the right time* can not be over-estimated. Far too many aviation organizations fail in this responsibility. But the NAA has recognized this vital responsibility and is doing a creditable job of handling it.

In all earnestness, especially in the light of the critical formative months ahead, we urge every person and aviation organization not now connected with the National Aeronautic Association to consider immediate affiliation for the purpose of unifying all civil aviation interests, heretofore impractical because a strong national organization, capable of tying all the loose ends together, simply did not exist.

It exists today and its existence is admirably justified. If your community doesn't have an NAA chapter, we'll assist you in organizing one. If you have a local aviation organization, investigate how easy it is to affiliate. The aviation people of this nation can write their own ticket provided they are informed, organized and militant. That ticket will be written during the next twelve months. The question of the hour is, will it be written by airmen of the nation banded together in unity or by the arm-chair experts and groundlings who have controlled the situation down through the years because civil aviation in the United States always has been a house divided against itself?

☆ ☆ ☆

OPPORTUNITY FOR AIR FORCES

IT is astounding to note some of the objections to coordinate status for aviation in the armed forces, particularly the Navy's opposition. In a strenuous effort to remain in the driver's seat, Navy spokesmen have sought to prove (1) that the Navy won the war with a little assistance from the Army and Air Forces, (2) that the atomic bomb requires sea power for its effective use, and (3) that, to quote Admiral King, "What is not good for the Navy is not good for the Nation."

The controlling influence of the Navy, so aptly reflected in Admiral King's arrogant attitude, would be eliminated by legislation now before the Congress which would create a single department of defense with coordinate status for air, sea and ground forces.

Unless there is legislation before the President's emergency war powers expire, the Army Air Forces will revert to the same status as the cavalry, or any other branch of the War Department.

Air power needs equality of representation before Congress, equal opportunity to present its claims for funds to budgetary authorities, and freedom from administrative control except that which is applicable to all three components equally. None of these is assured under the present organization during peacetime, since the Air Forces present position rests largely on personal relationships and revocable War Department circulars, and needs to be confirmed and consolidated.

A separate department of defense guaranteeing adequate air strength is absolutely necessary. ★ ★ ★

Combined for the first time

JET + PROPELLER

Doing the "Can't Be Done" in { Climb / Maneuverability / Speed

THE NEED: A *carrier-based* combat plane combining the advantages of jet propulsion for peak performance... plus piston-engine and propeller power for short take-off and long range.

THE EXPERTS said "it can't be done." But the Navy and Ryan, working together, tackled the problem and *licked* it... in the *first design.*

THE RESULT: The most successful application of jet propulsion yet worked out.

- The only jet plane which can operate from aircraft carriers.
- New high performance – superior maneuverability, speed and climb – over widest range of altitudes.
- Best combination of desirable fighter characteristics, each with its relative degree of importance to the others.
- Tremendous emergency power when both engines are used together.
- Advantages of two-engine airplane in single-engine configuration.
- A plane which gives pilot combat advantage at all times.

RYAN AERONAUTICAL COMPANY • SAN DIEGO

RYAN Fireball Fighter

U. S. NAVY'S NEW JET PLANE

Horizons unlimited

WHAT does a Boeing engineer think about? Talk to one for ten minutes and his pencil will start expressing the ceaseless workings of his mind . . . in smooth, clean, flattened curves of laminar flow airfoils, streamlined engine nacelles and upswept tail fins.

For his is the kind of imagination that never rests. In the absorbing task of designing a new and better airplane he will stay at his desk days and nights without sleep. His figuring is in infinitesimal measurements, but he thinks in terms of the infinite. His horizons are unlimited.

Boeing engineers—more than 3000 of them—translated the Army's dream of a super-bomber into the peace-making fact of the B-29. They put millions of grueling man-hours into a battle that never made the headlines but surely affected the course of history. Again and again they came up against blank walls—started over—found ways to do what had been the impossible.

You can't stop such men. You can't suppress their fierce enthusiasm or their amazing technical skill. Now that the war is over, they'll go right on creating and improving airplanes for the greater peacetime age of flight—the commercial transports and military aircraft that will make and keep America strong in the air.

Already the prototype of the first true super-transport—the Boeing Stratocruiser—has established new records for speed, performance and operating economy. Incorporated in its design are scores of aerodynamic and structural advancements developed and proved in victory over Japan.

In peacetime days ahead, the special abilities in research, design, engineering and manufacture which have given Boeing leadership in the big-bomber field will bring you the Stratocruiser and other advancements in air transport. You can be sure that any airplane "Built by Boeing" is built to lead.

DESIGNERS OF THE B-29 SUPERFORTRESS • THE FLYING FORTRESS • THE NEW STRATOCRUISER
THE KAYDET TRAINER • THE STRATOLINER • PAN AMERICAN CLIPPERS

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EQUIPMENT IN E L I WORLD-WIDE USE

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WITH PRIDE!

IT IS WITH PRIDE IN WORKMANSHIP, ACCOMPLISHMENT AND SKILL THAT E. L. I. MANUFACTURES THE COMPLETE LANDING GEAR AND COMPONENTS FOR THE NEW GLOBE *Swift*

Producing high quality precision equipment to extreme tolerances is the manufacturing background of E. L. I. You will find this vast experience valuable to your company and your products.

For scheduled deliveries, low unit costs and minimum scrap allowances, bring your precision problems to E. L. I.

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B-29 Bomber Becomes C-97 Transport

The B-29 is unquestionably the world's finest bomber . . . its range, speed, load capacity far exceed any other. Boeing engineers and designers decided that this famous ship had peacetime possibilities as a commercial transport if its carrying capacity could be increased. So they put their heads together and came up with the C-97 . . . a double-fuselaged giant with 10,000 feet of cargo space, capable, in wartime, of transporting 100 fully-equipped troops.

Except for this new hull, the C-97 resembles its B-29 brother in most respects . . . including the tail and the huge wing with its four great Wright 2200-h.p. engines. And just as Chandler-Evans carburetors made a fine wartime record on the Superforts, so is their steady, dependable performance carrying on in this peacetime version.

As new and finer sky giants are developed in the years ahead, CECO products will continue to supply them with the precision and quality that has met the test of war.

CARBURETORS FUEL PUMPS PROTEK-PLUGS

CHANDLER-EVANS CORPORATION

SOUTH MERIDEN, CONNECTICUT

CECO

. . . made possible with Sperry Model A-12 Gyropilot*

WITH suitable Runway Localizer and Glide Path Control equipment, the Sperry Model A-12 Gyropilot makes possible automatic landings under all conditions of visibility.

This Sperry Gyropilot takes over completely the task of seeking and adhering to the beam on the approach and lands the plane unerringly . . . the most exacting function any automatic pilot can perform.

The human pilot with the A-12 Gyropilot has complete gyro-stabilized control of his aircraft at all times...

- Perfectly banked turns at any air speed—automatically
- Gyrosyn Compass directional control—continuously slaved to the magnetic meridian
- Automatic holding of any selected altitude

- Automatic trim of elevator controls regardless of changing load conditions
- Utmost in passenger comfort—precise control and elimination of over-control, "hunting," and "wallowing"
- Electrical and mechanical interlocks—automatically insuring proper manual operation
- Automatic and instantaneous synchronization — no matching of pointers or other indications

These and other features of the new Sperry A-12 Gyropilot introduce a new era in automatic flying. Write our Aeronautical Department for further information.

*TRADE-MARK REG. U. S. PAT. OFF.

SPERRY GYROSCOPE COMPANY, INC., GREAT NECK, N. Y.

★

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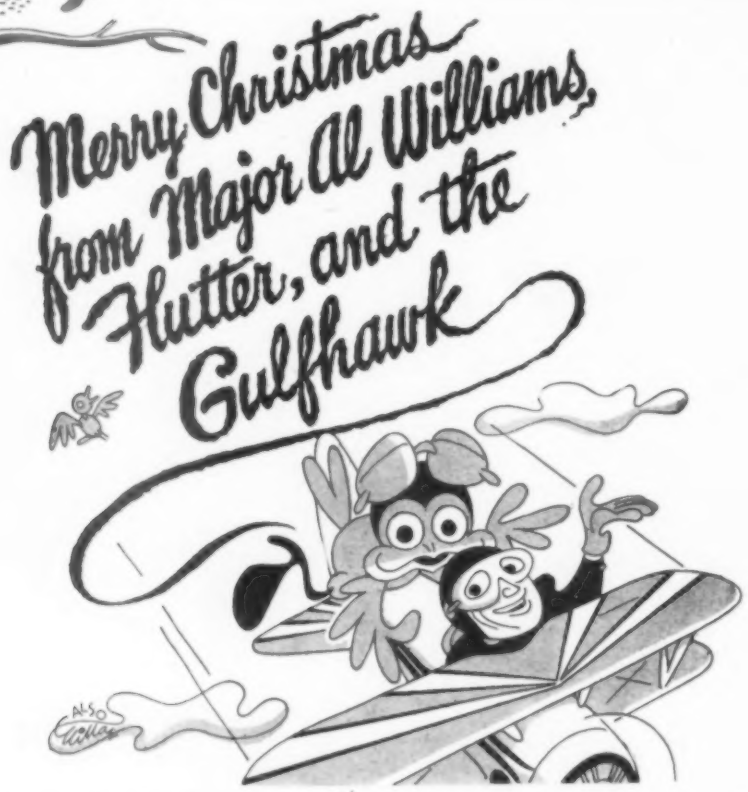
The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.



THIS IS GETTING EXCITING!

We started the Little Known Facts About Well Known Planes Dept. more than a year ago. We offered a genuine, engraved-type, jet-propelled Commission as Perch Pilot (bottom rung), for a Little Known Fact—with proof—good enough to print.

We also promised promotion to Senior Perch Pilot for *five* Facts. (And to Command Perch Pilot after twenty of your Facts have been run!)

We've commissioned Perch Pilots all the way from Harrisburg to Honolulu.

Some have got two—some three . . . but only two Perch Pilots have got 4 to date. George Clay, of Dallas, Tex., becomes a 4-timer with the "Fact" below. Jim Adams, of Toledo, is the other one-less-than-Senior Perch Pilot.

Every time we open a letter, we wonder whether one of these lads is going to be the first Senior Perch Pilot. Or will a dark horse gallop in with five "Facts" all at once and take first?

That's up to you. Meanwhile, we'll just open the mail and hold our breath. Here's Clay's fourth: . . .

"The 'modern' wonder-metal, aluminum, was used in the first powered airplane! The flight at Kitty Hawk was made with an engine which had a cast aluminum crankcase and water jacket!"

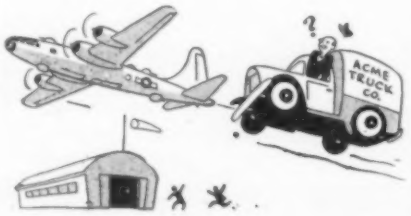
And a Commission to Beverly Stevens, Municipal Airport, Omaha, Neb., for:

"In warming up, a B-29 uses enough fuel to drive a truck from Omaha to Cleveland!" (G.A.G., we assume, Ed.)

S/Sgt. Robert Stolze, Sqdn. D, C.A.A.F., Clovis, N. Mexico, has been promoted since his first "Fact." Here's No. 2:

"The cooling area of the B-29's engines is greater than the total wing and tail area of the plane!"

See how easy it is! Now *you* write some!



SELECTIVE SERVICE

Ever hear of "Thermal stress?"

That's the term lubrication engineers use to describe one of the toughest problems in friction prevention. It's the effect on your lubricating oil of engine-part temperatures ranging from below zero to 750°!

Traveling from one destructive extreme to the other in a matter of seconds, no wonder the less stable hydrocarbons in your oil are transformed into sludge, varnish, and carbon.

Ever hear of the Alchlor Process?

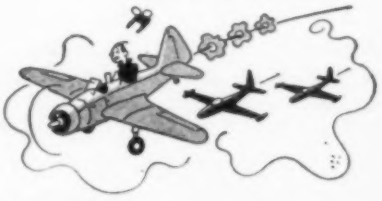
That's the term lubrication engineers use to describe the super refining step in the manufacture of Gulfpride Oil. It's an additional step that pulls out more of the 4F hydrocarbons from Gulfpride—the same 4F's that oxidize so easily during that "Oil migration."

So Gulfpride Oil gives you *more* lubrication and less sludge and carbon.

You ought to use it.

THE VERSE IS YET TO COME DEPT.

Flutter, Prop.



While flying a surplus PT,
A pilot was dumbfounded. He
Was passing P-80's
Like a bat outta Hades!
(He'd gassed up with Good G.A.G.!)

Gulf Oil Corporation and Gulf Refining Company...makers of

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The Grumman Widgeon gives executives and sportsmen more complete use of limited leisure.

Available for immediate delivery.

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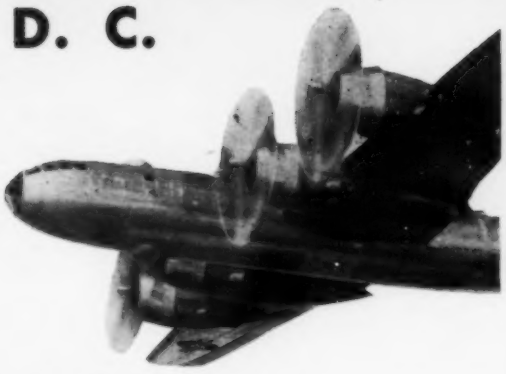
"...that this Nation
SHALL NOT PERISH
FROM THE EARTH"
Our highest military authorities are advocating a strong postwar airforce believing that the future security of America rests with air power. To make and keep that airforce strong is the obligation of research.
As one of the nation's leading designers and builders of aircraft, Curtiss-Wright is dedicating its extensive Research Laboratories to helping this nation create continued air superiority, and so keep faith with those who died that freedom might live.
CURTISS
RESEARCH LABORATORY
AIRPLANE DIVISION OF
CURTISS WRIGHT
FIRST IN FLIGHT
"ETERNAL VIGILANCE IS THE PRICE OF LIBERTY"

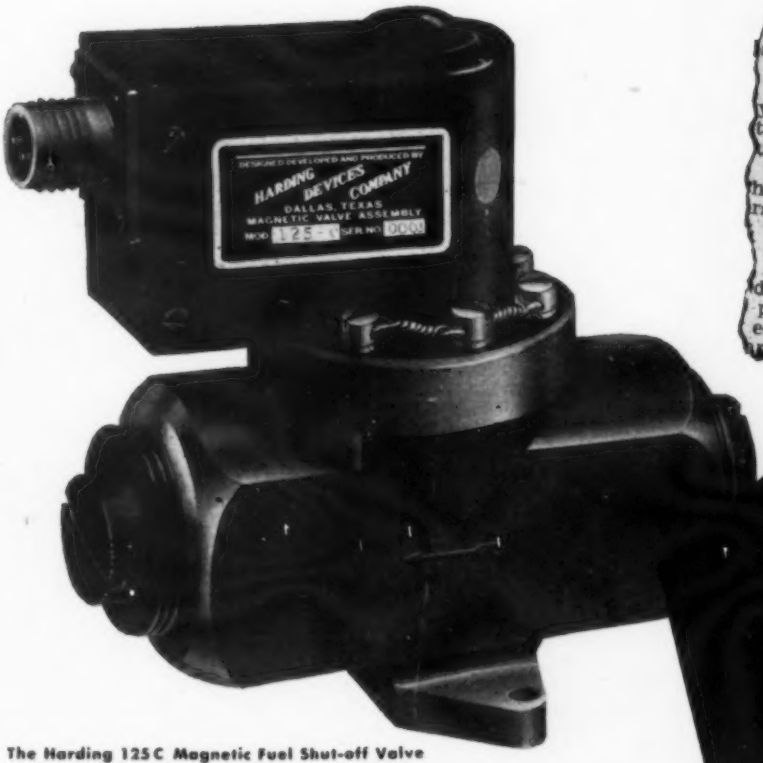
GUAM TO WASHINGTON, D. C.

NON-STOP



8,198 MILES IN 35 HRS. 5 MIN.

FLASH November 20th. Boeing B-29 Superfortress piloted by Col. Bill Irvine and AAF crew, shatters all existing distance records in a flight from Guam to Washington, D. C.; 8,198 miles in 35 hours and 5 minutes, an average speed of 234 m. p. h.



The Harding 125C Magnetic Fuel Shut-off Valve is now available for commercial aircraft.

HARDING Magnetic Fuel Shut-off Valves controlled the entire fuel system, handling more than 33 TONS (11,110 gal.) of high octane gasoline consumed during this record breaking flight.

Other HARDING VALVES fly with:

Consolidated B-32 Dominators
Fairchild C-82 Packets
North American P-82 Fighters

PRESENT YOUR VALVE PROBLEMS TO US

HARDING DEVICES COMPANY

DESIGN AND DEVELOPMENT OF AIRCRAFT SPECIALTIES

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• DALLAS 5, TEXAS
• PHONE LAKESIDE-9934

Something New... THE PORTO-FAB COMPANY

Pre-fabricators of all-metal buildings, individual airplane hangars, roof-top wind lees, boundary markers, and other airport accessories

To municipalities, operators, private airports and others, we are now offering for the first time an all-steel house frame, of 20-ft. by 32-ft. dimensions, or longer in 4-ft. sections. Frame is shipped knocked down and ready to erect on 4-in. concrete slab. Consists of frame on 4-ft. centers, 2 doors and 8 complete windows. $1,575. Makes ideal house, shop, administration building, warehouse, tourist cabin, etc.

Inquiries from all parts of the country are being received regarding our all-steel individual airplane hangar frame, of 40-ft. by 24-ft. dimension, or longer in 4-ft. sections. It is supplied with one man size exterior pivoted sliding door. Shipped L.C.L. or by truck, knocked down ready to erect.

We are interested in contacting alert dealers and representatives and offer attractive discounts.

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AIR REPORT

☆ SIGNIFICANT TRENDS IN THE NEWS

Miniature Jet Engine Flying

A jet engine small enough for lightplanes has been under test for some time by Westinghouse. Only nine and one-half inches in diameter, it has an axial-flow compressor and delivers 275 thrust-pounds as compared to the 3,400-thrust-pounds power of jet engine for Navy fighters. Originally perfected as a powerplant for an experimental U. S. buzz bomb, the baby jet has powered lightweight radio-controlled "drones" launched from Navy motherplanes. A Westinghouse statement says some version of the baby jet engine "may see service as a power source for aircraft cabin supercharging, wing de-icing, driving helicopters and powering personal planes—though in a flivver plane it would drive a propeller, rather than be used as a jet engine. Jets are inefficient at low speeds."

★ ★ ★

More Planes, Lower Insurance

Insurance rates have always been a factor to be reckoned with in computing operating costs for a personal plane. Lower rates are necessary to bring down operating costs and encourage more people to own planes. Aero Insurance Underwriters say that, due to anticipated larger volume, aircraft liability and property damage rates will be much lower during the coming year. As Aero puts it, ". . . the increasing number of aircraft now going into operation seems to justify the assumption that the future will bring a substantial increase in volume of premium and we expect that losses will not be any greater proportionately than in the past." Overall loss experience has been very good in the past on third party insurance for private owners and on aircraft sales and service operators, the company explained.

★ ★ ★

Design for Cross-Country Rental Planes

Howard Ailor, president of the Fly-Ur-Self System, has prepared specifications for the "ideal" five-place airplane for cross-country travel. It would be a twin-engine craft, having two 250-hp. engines driving a single propeller; a 200-mph. cruising speed at 60 per cent power; a 50-mph. landing speed; a take-off run of 500 feet on both engines, 1,000 feet on one engine; 1,000-mile range; 5,000-lb. gross load with 2,200-lb. useful load. Ailor wants simplified controls, tricycle landing gear and all-metal construction. He believes such an airplane can be built in volume to sell for about $12,000.

★ ★ ★

Surplus Planes Into "Mines Above the Ground"

Aircraft and aircraft parts originally costing over $17,000,000,000 will total about half of all expected surplus property by June, 1946, according to a new report to Congress by the Surplus Property Administration. The majority of the surplus will consist of obsolete combat planes, engines and spares, divided into four classes: Tactical planes, transport planes, personal planes and aircraft components and parts. More than 15,000 planes have already been sold at a net return of $31,000,000.

Aircraft scrap is delivered to four fields and lumped into gigantic "mines above the ground." These "mines" will be "worked" as the metal can be absorbed by the market. The Navy is building its own smelter at Jacksonville, where non-flyable planes are being scrapped, and is expected to be in operation by January 1. Scrap dealers will buy the ingots.

With 400 planes a day becoming surplus, and 4,000 already have been stored at three airports, a fourth airport will soon be utilized for airframes and engines. The War Assets Corporation is taking over surplus war planes at

Flying to winter vacation grounds is simple and easy with a Bendix Flightweight* Radio to keep you on the beam and in the right direction! Gets you there and back quicker with more time for fun and sunshine.

Flightweight Radio has everything! It is light, compact, has keen selectivity.

Your plane will serve you oftener with a Flightweight Radio installed! You'll be flying more hours on more different days—with greater pleasure. You will be able to really *see* scenery, instead of *navigate* by it! And when time hangs heavy on extra long cross-country flights, Flightweight can bring in music for your pleasure!

Remember—Flightweight is made by Bendix, foremost name in aircraft radio for big airliners and the military. So see Flightweight first! Ask your local dealer about it or write direct to Bendix Radio Division, Personal Aviation Sales.

*TRADE MARK

The Greatest Name in Aircraft Radio

Get more fun from flying. Write for free booklet "For Wider Horizons."

BENDIX RADIO

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IRVIN AirChute

"SINGLE-RELEASE" Harness

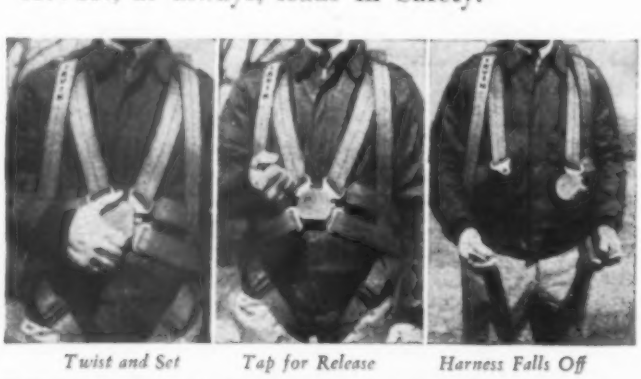
UNITED NATIONS' FLYERS

are using it for

SAFER LANDINGS

A one-hand turn and a tap on the single frontal disk instantly releases the harness . . . leaving the flyer entirely free. Accidental release is impossible before disk is "set" for action.

All United Nations' Air Forces for years have used IRVIN as standard equipment . . . and now the Irvin "Single-Release" harness is acknowledged as superior for all landings. IRVIN, as always, leads in Safety.



Twist and Set *Tap for Release* *Harness Falls Off*

IRVING AIR CHUTE CO., Inc.

Main Office: 1670 Jefferson Ave., Buffalo 8, N. Y.

Complete Factories in Buffalo, N. Y., Glendale, Calif. (1500 Flower St.), and Lexington, Ky., U. S. A. . . . Canada, England and Sweden . . . All Serving the United Nations' Air Forces.

BUY MORE WAR BONDS

Kingman, Arizona, Clinton, Oklahoma, Walnut Ridge, Arkansas, and a fourth in California. Surplus airplanes, stripped of engines, are to be stored on these fields, with the engines being stacked separately.

★ ★ ★

Beech Delivers the Goods

One of the nation's most impressive reconversion jobs has been accomplished by Beech Aircraft at Wichita. Production of its popular twin-engine Model 18S executive transport reached the two-a-day scale recently without fanfare. On December 5, twelve Beechcrafts were on the airport for fly-away delivery the same day—over $1,000,000 worth of deliveries. Beech is hard at work proving up an impressive new single-engine, four-place design for the private pilot. Of all-metal construction, it will probably sell for less than $6,000. Beech is determined to amass several hundred hours on the four-place design before making any performance claims for it.

★ ★ ★

CAA's Chart of Progress

Estimating future expansion of aviation (see page 29), CAA has prepared a detailed study of production based on its forecast. Here's a summary of the outlook for non-air-carrier registration and production:

Year	Registered Airplanes	Annual Growth (30 per cent)	Annual Replacement (20 per cent)	Annual production
1945	30,000	.....	.....	.....
1946	39,000	9,000	6,000	18,800
1947	50,700	11,700	7,800	24,400
1948	65,900	15,200	10,100	31,600
1949	85,700	19,800	13,200	41,300
1950	111,400	25,700	17,100	53,500
1951	144,800	33,400	22,300	69,600
1952	188,200	43,400	29,000	90,500
1953	244,700	56,500	37,600	117,600
1954	318,100	73,400	48,900	152,900
1955	413,500	95,400	63,600	198,800

★ ★ ★

Trade Shows

The aviation industry is not ready to participate in the many aviation trade shows being planned for the immediate future. The Aircraft Industries Association show committee recently voted unanimously against sanctioning any shows at this time, setting forth that reconversion problems, the heavy expense of participation and the tremendous loss of time by key sales personnel place too great a burden on individual companies. AIA is not opposed to shows and a new policy will be developed in 1946 to permit participation in beneficial show activities. But as it stands now, the outlook for trade shows during the next few months isn't healthy.

★ ★ ★

Volcano

The long-awaited showdown between the forty-eight states and the Federal Government over economic regulation of air transportation is rapidly approaching. Surplus transport type aircraft are selling "like hot cakes," the majority of which are destined for new operations, chiefly in intra-state contract freight hauling. Returning air war veterans with plenty of risk capital behind them comprise the major fabric of the new organizations. Disgusted with long delays and heavy expense involved in making application for certificates of convenience and necessity, scores of newly formed companies plan to start operating without Federal certificates. Watch for the showdown shortly after the first of the year when the states are expected to side with the vets.

This is the fifth in a series of advertisements concerning the future of Aviation . . . in America

Bridging the "V" brings a New Challenge to Aviation

THE Aviation Industry shares responsibility with Private Citizens, American Business and Government in making our nation the world's greatest peacetime air power. Only if we are such a power can we look forward to permanent Peace and National Security. For modern aviation has ended all thoughts that the United States is an isolated nation.

Under wartime necessity, the advancement of American Aviation was one of the great industrial miracles of all times.

Now the challenge of peace provides an even greater stimulus to carry on the kind of *scientific research, technical developments* and *production methods* that in a few short years made our air power a decisive force in the achievement of Victory.

For the aircraft of today and tomorrow should be used for the advancement of civilization, not for the destruction of mankind.

At Bell Aircraft our sights are aimed at putting into civilian service the same types of aeronautical skills and achievements as were identified with the Airacobra, the Kingcobra, the Bell-built B-29 Superfortress and the Airacomet . . . America's first jet propelled plane.

Bell Aircraft pledges to the Citizen, to Government and to American Business that we will intensify our research and scientific development programs. Soon we shall bring to them a new form of flying . . . the Bell Helicopter . . . "The Modern Magic Carpet"* that offers door-to-door delivery . . . that can fly to and land in inaccessible spots reached by no other mode of travel . . . a helicopter with built-in, engineered stability. As in the past, now in the present, look to Bell Aircraft to be the civilian pacemaker of Aviation Progress.

**Reg. Applied for U.S. and principal Foreign countries*

BELL *Aircraft* **CORPORATION**

Buffalo 5, New York

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PACEMAKER OF AVIATION PROGRESS

Logging The Coast

By.. Midge Winters

NOW, it's a business, this aircraft testing. Alex Papana, well known precision flier and test pilot; J. P. Davies, former vice president of Timm Aircraft, and Theo. D. Rogers, one time manufacturer of radio-controlled glider-bombs, have formed the Aircraft Testing Company, Burbank, Calif.—the only one of its kind in the world.

Launched last March, the company draws from a pool of pilot, mechanic, and engineering talent to conduct tests on any type aircraft of allied products. It is fast earning a reputation as counseling authority in the field.

"The work of our organization," explains Davies, who is president, "corresponds somewhat to the function of public accountants in auditing the books of a corporation. Many large aircraft companies which have competent test pilots and engineers of their own make it a practice to have independent test pilots and engineers check and test each new model. In addition, many manufacturers are bringing out new designs of aircraft, engines, propellers, instruments and accessories, who have not developed adequate testing divisions and depend entirely upon such a group as ours."

Airplane Testing Phases Listed

Papana, vice president and chief research pilot for Aircraft Testing, points out that "test flying is more than just taking a plane up and putting it in a dive to see if the wings fall off." There are some half dozen testing phases through which a new aircraft is taken, he says. Roughly, they are (1) taxiing; (2) first flight, "when there is trouble 90 per cent of the time and since something is likely to happen, it's very exciting; (3) five or six experimental flights, during which retractable landing gears, flaps, and other such features are checked; (4) engineering test flights, which might take anywhere from six months to two years are conducted to test performance, flight characteristics, power, speed, altitude, and "an endless number of things"; (5) demonstration test flight, if the aircraft is destined for the military—here the test pilot takes up the new craft and puts it through the hoops as to maneuverability, etc.; (6) acceptance flight, during which the test pilot takes along military engineers to observe the craft in flight.

Since an aircraft is constantly going through change to keep it off the obsolete list, flight analysis tests frequently are scheduled to make or break speed or altitude records, or to experiment with some new idea in the aviation industry. "Naturally," says Papana, "the work of Aircraft Testing is secret, as a rule, because of the very nature of the work."

Papana, a colorful story in himself, is perhaps best known as the famous Royal Rumanian Air Force pilot who first flew for American audiences in 1936 in the National Air Races at Los Angeles. However, Papana had thrilled Americans four years before with another type speed demonstration when he won the bob-sledding world championship during the Olympics at Lake Placid. In 1939, the young pilot foresaw the coming German pressure on Rumania and got out just a step ahead of the Nazi's entrance. By 1944, he was test flying Black Widows and the Northrop Wing, and making extensive studies in the realm of compressibility and other sonic speed and high altitude phenomena.

Test Pilots' Contributions

The phrase "unsung heroes" has taken quite a tossing these last few years, but suffice it to say that test pilots have made a great contribution to America's advance in aviation. When you stop to think that no plane is delivered to a military pilot, and that no plane is assigned to a commercial air carrier without having first had a series of shakedowns from test pilots—well, the deduction is simple.

And "it ain't easy," as they say on Main Street. As a matter of fact, the story goes that when Test Pilot Bill Morris of Douglas went out to the South Pacific to demonstrate the A-26, a few of the combat pilots heard about some of his testing experience and eyed him with awe. "Imagine sticking your neck out like that guy," one commented to the others. This yarn gets a guffaw from test pilots, who are a bunch of modest fellows anyway.

★ ★ ★

New PJC Model

Well, the kids have done it again. Pasadena Junior College aviation students have completed the construction of Model PJC-4, a two-place, low-wing, all-metal monoplane with a sliding canopy. Designer is Max Harlow, head of the college's aviation department, which has been turning out self-built ships for the past ten years.

This is one of the very few schools in the country that goes about learning aviation the hard way. Other models of private planes designed, built, and flown by the college's aviation department have been the PJC-1, PJC-2, and the PJC-5.

Preliminary flight testing of the PJC-4 indicates, according to the Pasadena School "Review", that the ship has even better flight characteristics than its now popular predecessors, marketed by the Harlow Aircraft Corp., Burbank (recent purchasers of the Interstate Cadet).

An extensive flight-test program has been scheduled for the next few months to prove that the PJC-4 is "the last word aerodynamically and structurally for a sport-type airplane for the private flier."

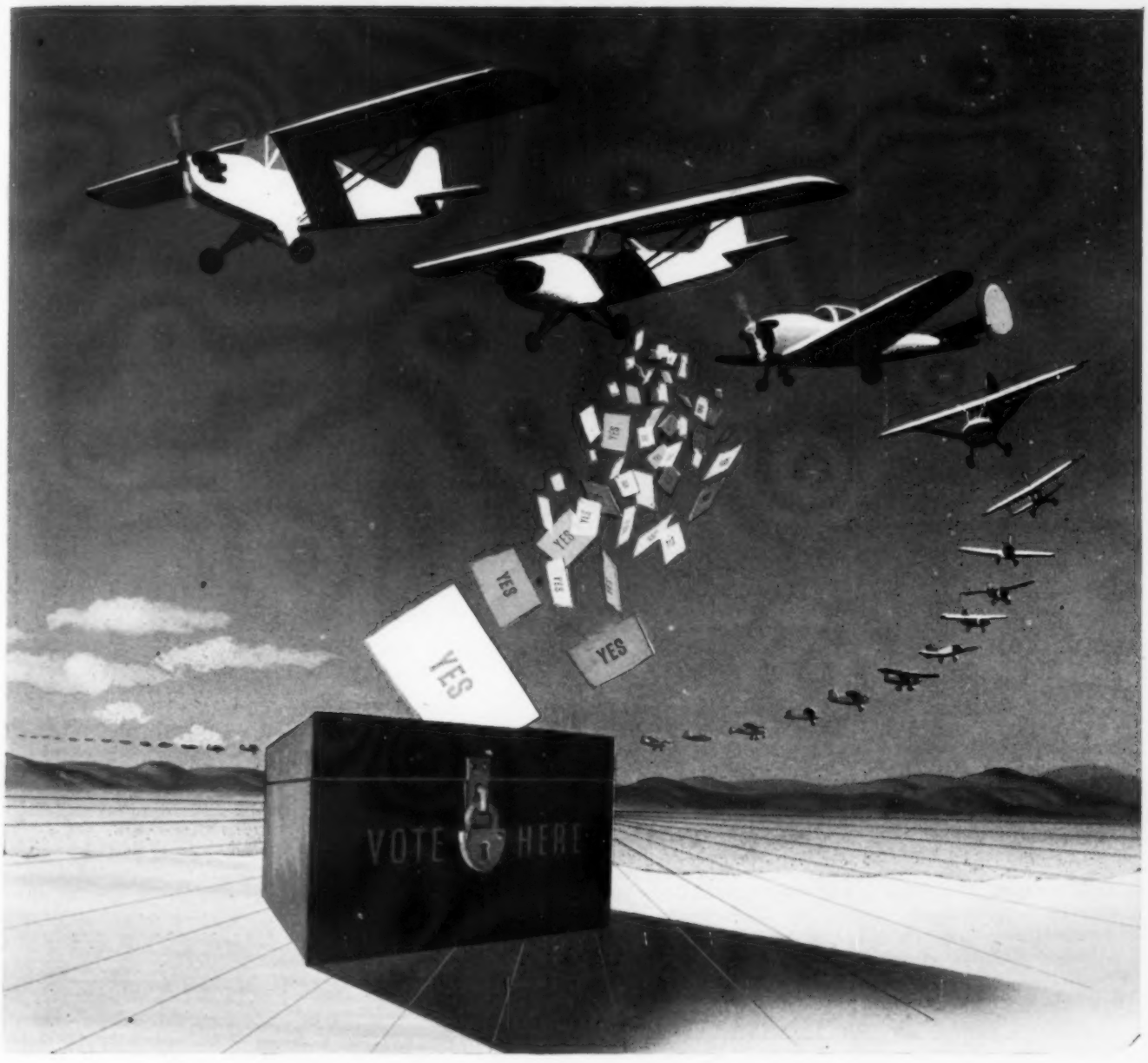
Specifications of Model PJC-4 as listed by the college include:

Engine—220 Hp.—Lycoming
Wing Span—35.75 Feet
Length—31.50 Feet
Gross Weight—2,893 Pounds
Cruising Speed—153 mph.
Top Speed—170 mph. (Preliminary)
Gasoline Capacity—58 Gallons

Plans are already under way at the aviation laboratories for two new projects, one a new four-place, cabin airplane incorporating automobile-type interior. The all-metal air-

DESIGNED BY MAX HARLOW AND BUILT BY STUDENTS at Pasadena Junior College, the PJC-4 incorporates improvements over Harlow's earlier designs which were marketed before the war. Latest of five student-built lightplanes, it is two-place low-wing, powered by 220-hp. Lycoming which cruises at 153 mph. New projects at Pasadena Junior College include a four-place cabin model.

—(TATWI Photo.)



5,000 WERE ASKED . . .

As a guide to the private plane manufacturer in developing his new models, more than 5,000 pilot and pilot-owner members were recently asked by the Aircraft Owners and Pilots Association to state, on the basis of their experience, their instrument requirements in the new planes which they planned to purchase. ¶ The replies of this experienced group, three-fourths of whom are or have been plane owners, will be of interest to all who, themselves, plan to purchase planes. ¶ The results showed that these pilots were overwhelmingly in favor of "better" instruments than most private planes contained. And they were willing to "pay more" to get them. Reasons: "To make flying safer . . . to increase the utility of my ship . . . for efficiency and economy." Over 80%, for instance, want Sensitive Altimeters in their new planes. ¶ To meet the need so clearly outlined by these thousands of pilots, Kollsman has developed a new line of instruments designed and *priced* for the private plane owner. Full details of these instruments will shortly be announced. ¶ Meantime, Kollsman is making available the pilots' answers to the sixteen basic questions in the AOPA Survey. For your copy, write Advertising Dept., Kollsman Instrument Division, Square D Company, 80-08 45th Avenue, Elmhurst, N. Y.

KOLLSMAN AIRCRAFT INSTRUMENTS

SQUARE D COMPANY

ELMHURST, NEW YORK · GLENDALE, CALIFORNIA

plane construction class, under the supervision of Henry L. Lewis, is already hard at work on the mockup. The other project is a helicopter.

★ ★ ★

Two-Place Little Dipper

Still on the withhold list is the Little Dipper, alias the Flying Man, alias the Flying Jockstrap. Built by Lockheed, it is a one-place job and has been described by one of the pilots who tested it as "just like tacking a pair of wings to the seat of your pants."

The Little Dipper is being used to determine the most desirable flight characteristics while surveying a potential personal flying market, according to Bob Gross, president of Lockheed. Results will be incorporated in both two-place and four-place successors—maybe. If the market doesn't prove just right, the whole project may be shelved.

It's a little foolhardy to guess, along with those who have chanced to see the little ship scoot off in test flights from Lockheed Air Terminal, just what its specifications are. Lockheed isn't talking about that these days, so we will have to wait for an accurate job of reporting. However, it is still highly experimental, different types of engines are being used, and many changes made.

In all probability, the two-place Little Dipper will be flown this month (December).

★ ★ ★

More Scuttlebutt

It would be something to figure how much time and money reporters spend in tracking down rumors—and, of course, how much time and money it takes press agents to deny them. But the latest one is the story that either (1) Harlow Aircraft is selling out or (2) that Rheem Manufacturing Co. is buying Harlow's Interstate Division. Neither version is true—or at least wasn't when we checked.

Harassed Harlow officials say they will in all probability sell the Interstate Cadet, but they haven't hung out any printed "For Sale" signs. Version No. 2 of the rumor probably got its start from the fact that Rheem, who, incidentally, is building a military-secret helicopter, financed the production of the PJC-4 prototype, designed by Max Harlow. Harlow—Rheem, Rheem—Harlow. See the connection? Well, anyway, that's the way we heard it. Harlow Aircraft is now winding up some military contracts and has under its wing the PJC-2, the PC-5A and "Model 7," a new 4-place plane now on design boards.

Finding Fault From the Air

Took a flight recently in Jack West's Ercoupe and decided that wind socks must be outmoded or passe, since there were so few in evidence around Southern California airports. And if it hadn't been for Jack, I could easily have thought I was in Timbuctoo, for all the airport identification I saw. Are airport names a secret or something? There's a good long story here for all would-be private fliers, and I'm in a good mood to write it now—thanks to Jack.

★ ★ ★

Glance and a Stare

There's a young man with a Flying Wing in San Fernando Valley and they say he's discovered the secret of controls. I've seen it and it looks good, but then it has yet to be test flown and proven. When that day comes, there'll be a revolutionary announcement.

★ ★ ★

Leg Pulled

What was to have been an inauguration of Western Air Lines' San Bernardino-Palm Springs-El Centro leg has been literally pulled—the Army refuses to allow the airline to operate out of its base in San Berdoo, the Navy, likewise, at El Centro. Reasons—military secret operations. So, at last accounting, there will be merely a shuttle run between LA and Palm Springs.

★ ★ ★

Bad Day

Tex Rankin was in good form at the recent So. Calif. NAA meeting—spoke about the days when he took off from a wheat field, after cutting his own runway with a sickle, and when he went after a chocolate pitcher, the prize in an acrobatic contest, for his wife. It was hilarious, particularly the part where Tex summed up a tight spot which looked like sure death. "Well, I thought, this is just a bad day."

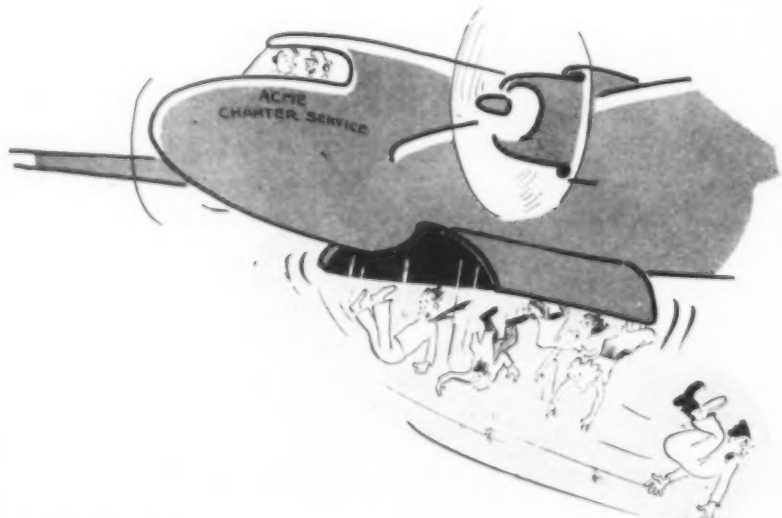
★ ★ ★

Winged Elk

Aviation Day of the Los Angeles Ad Club is an event which would be good on any club's program—all the airlines serving the area fly in choice delicacies for the luncheon. We gobbled up fresh Louisiana shrimp a la Flagship; roast Colorado elk, Mainliner; baked Idaho potato, Western style; Skychief salad of Arizona dates and pecans; and Mexican candy and Guatemala Clipper coffee.

Union Oil prexy Reese Taylor was the speaker of the day, with a report on air freight which made it seem like "railroad day."

"There never can be any great movement of freight by air unless someone repeals the law of gravity. It takes more energy to pick it up than to roll it," he said. However, he saved the day and aviation by predicting, with figures to prove it, that perishable express and passenger seats, at 10 cents per ton mile and 4 cents per mile, respectively, will fill the skies with planes. What a relief!



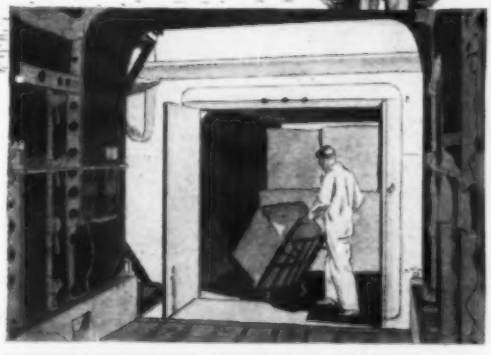
SOUTHERN FLIGHT —Joe James.

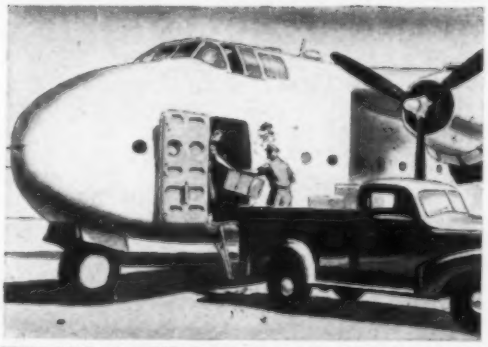
"Before I bought it from the Army, this was the bomb release."

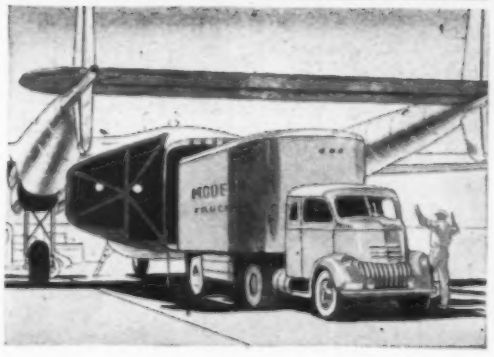
Northwest Planning Conference Set for Jan. 21-22

The Northwest Aviation Planning Council will hold a meeting in Boise, Idaho, January 21 and 22, 1946, for the area including the states of Oregon, Washington, Montana, Idaho, Territory of Alaska, and Canadian provinces of British Columbia and Alberta. Wide representation of aviation and related interests will attend.

IT'S EASY TO LOAD THE FAIRCHILD PACKET







The Army can drive 10-wheeled trucks, tanks, and many other units of heavy military equipment right into the spacious hold of the Fairchild "Packet".

Or bulky cases can be "walked" from a trailer truck directly onto the floor of this "flying boxcar." (Note: Horizontal "Packet" floor is same height as standard truck floor.)

Smaller packages can be loaded through the forward door or through the paratroop doors at the rear when the tail is closed.

Think what this efficient cargo handling will do for the air shippers of tomorrow! Fast flying freight . . . safe, easy loading . . . costs comparable to surface transport at air express speeds.

All Fairchild Aircraft Division's production facilities are now building the "Packet" in quantities exclusively for the Army Air Forces.

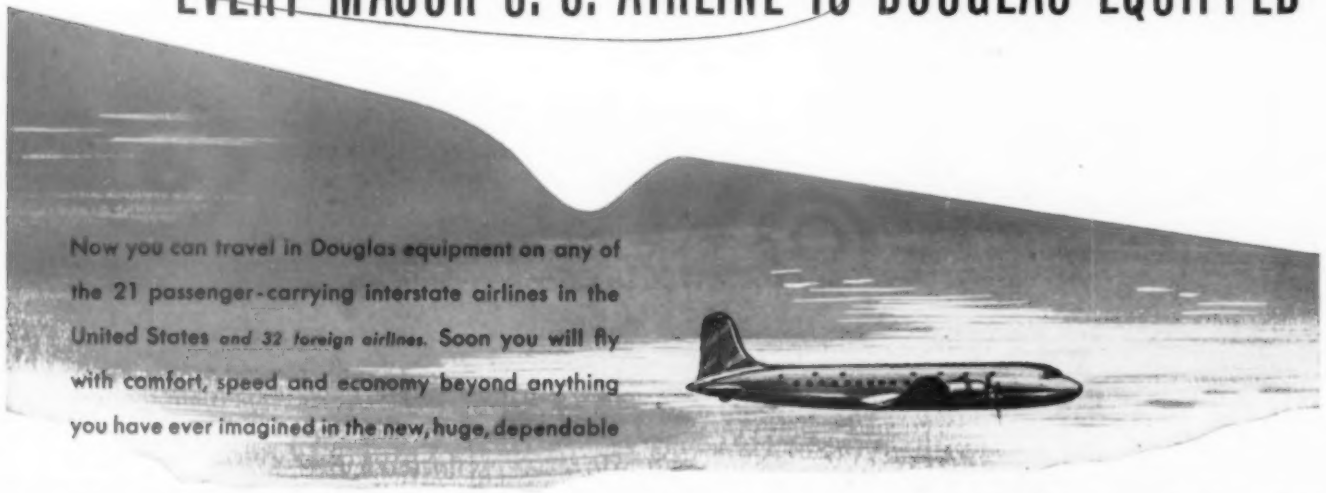
Additional and more detailed information can be obtained by writing Transport Sales Division, Fairchild Aircraft, Hagerstown, Maryland.

BUY U. S. WAR BONDS AND STAMPS

Fairchild Aircraft

Division of Fairchild Engine & Airplane Corporation, Hagerstown, Maryland

EVERY MAJOR U. S. AIRLINE IS DOUGLAS EQUIPPED



Now you can travel in Douglas equipment on any of the 21 passenger-carrying interstate airlines in the United States *and 32 foreign airlines.* Soon you will fly with comfort, speed and economy beyond anything you have ever imagined in the new, huge, dependable

DOUGLAS DC-6

GREATEST NAME IN AVIATION

Sister Ship of the Famous C54 Combat Air Transport

... you know the company is going to need an airplane — why it will be as much a part of the business as the new warehouse. This airplane is really built. I know it is good because the company making it helped build the ships we flew in combat. Performance is a matter of record.

... and another thing, since I am going to do the flying, I want those twin engines and variable pitch props. And boss, look — it is equipped with two-way radio and all the instruments for blind flying — it'll be a sweetheart on the gauges, and stay right in there with airline speed and cruising radius. It'll be a cinch for you, the plant manager and your chief engineer to make those meetings, like you always wanted to — and even pick up the branch managers at Greenville and Springfield. You all arrive together and leave when you want to. It's a natural.

Okay, son. I knew it was coming. It's the way we do business, but I wanted to wait and talk it over with you. Better write SOUTHERN for details. .. it *does* look like a good thing.

Southern
AIRCRAFT CORPORATION
PLANT IN GARLAND, DALLAS COUNTY, TEXAS

"...OF MEN AND MACHINES"

MEN and machines are teamed together at the Guiberson Corporation to insure the highest degree of precision and accuracy in production. Guiberson plants are equipped with specially designed machine tools, complete hydro-press and drop hammer facilities for sheet metal forming, highly specialized heat treating, parkerizing and cadmium plating departments and a rubber plant and control laboratory that insures the best possible rubber products. Guiberson is ready to serve your heat treating, sheet metal forming and machine tool operation needs.

THE *Guiberson* CORPORATION DALLAS, TEXAS

ESTABLISHED 1919

Producers of oil field tools, steel cabinets, domestic oil heaters, sheet metal products and molded rubber products.

CAP SUB HUNTERS 60 MILES OFFSHORE

KEPT CONTACT WITH BASSETT AIRCRAFT RADIOS

SALUTE TO
CAP ANTI-SUBMARINE BASE NO. 3
LANTANA, FLORIDA

Sixty miles offshore, Civil Air Patrol flyers combed the Atlantic and the Gulf for Nazi submarines. Flying low and slow, with a single engine, a bomb and a prayer, they covered 24 million miles of water. Dawn to dusk, they demanded hours of steady radio communications, with Bassett standard production civilian aircraft radios keeping them in contact with their bases. In dirty weather loop directional antennas brought them home safely. Your peace-time aircraft radio can be just as important to you. Choose it from the famous Bassett line — They're Engineered for the Job!

MODEL CR 12 COMBINATION
AIRCRAFT TRANSMITTER-RECEIVER

REX BASSETT, INC. FORT LAUDERDALE, FLA.

FIVE HUNDRED MILES from Base, the Catalina crew sighted a Jap task force! Frantic Jap carrier fighters made attack after attack. Inside a wounded radio operator struggled to repair his shattered transmitter. Painfully his fingers beat out an emergency—alerting all American naval forces. He kept on sending until the disabled "Cat" crash landed into the sea . . . On the life raft he still stuck to the job—cranking out S.O.S. on Gibson Girl, the emergency set, until his crew was rescued.

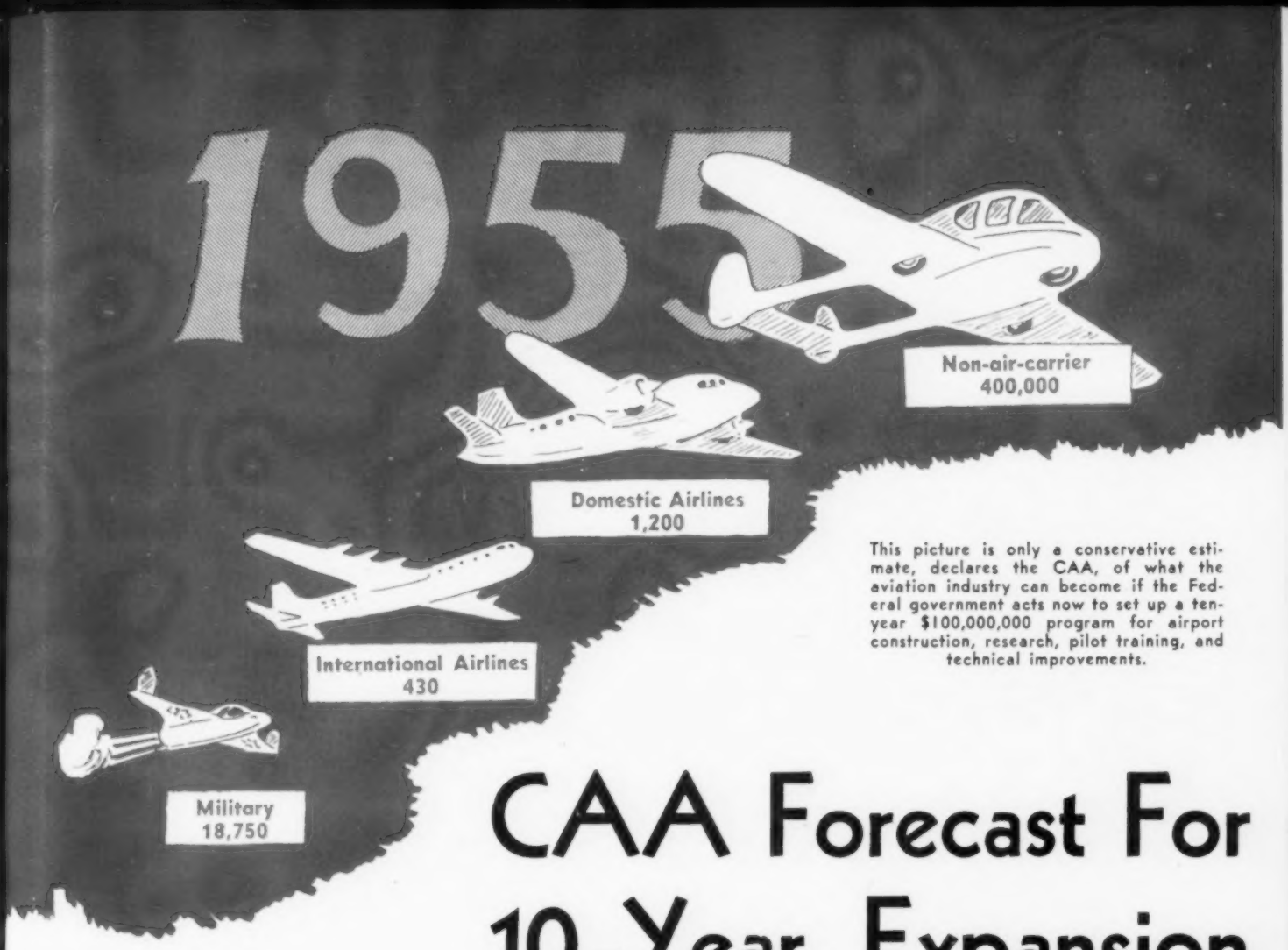
He was 22 years old—and what he did took more than guts . . . it took plenty of knowledge and skill. Command, liaison and interphone radio sets, radio compasses and navigational aids and radar devices were the tools these men worked with.

. . . . . .

He and tens of thousands like him have mastered new, complex and varied skills . . . and hold within them magnificent promise for the future of American aviation.

His finger is on the pulse of tomorrow...

ESSO AVIATION PRODUCTS *have been proved a thousand times over in the terrific stress of war. Take RUST-BAN 392 . . . a solvent type which leaves a thin, almost invisible yet highly protective coating. It contains a neutralizing agent to counteract acid corrosion from human sweat that might occur during handling of parts after manufacture. From Rust-Bans and special lubricants to jet engine fuels, you can depend on* ESSO AVIATION PRODUCTS.



This picture is only a conservative estimate, declares the CAA, of what the aviation industry can become if the Federal government acts now to set up a ten-year $100,000,000 program for airport construction, research, pilot training, and technical improvements.

CAA Forecast For 10-Year Expansion

By JOE JAMES

CIVIL aircraft registrations in the United States will total 400,000 by 1955 and the aviation industry will provide 756,000 new jobs, vast indirect employment, and a dollar volume three times that of 1939—*if* the Federal government acts now to launch a ten-year, $100,000,000 program for airport construction, research, pilot training, and airways development. So says the Civil Aeronautics Administration in a new report, "Civil Aviation and the National Economy," which covers present needs and potential growth of the aviation industry during the next decade.

Of the 1955 aircraft registration, 280,000 planes will be used for personal business and recreation, 40,000 by business concerns for sales and administration, and 80,000 for non-scheduled operations and commercial work. The airlines, with five times the business of 1939, will fly 11.5 billion passenger miles annually and will need 1,000 passenger and 200 cargo planes. Domestic passenger revenue should total $345,000,000. The military services will require 18,750 airplanes.

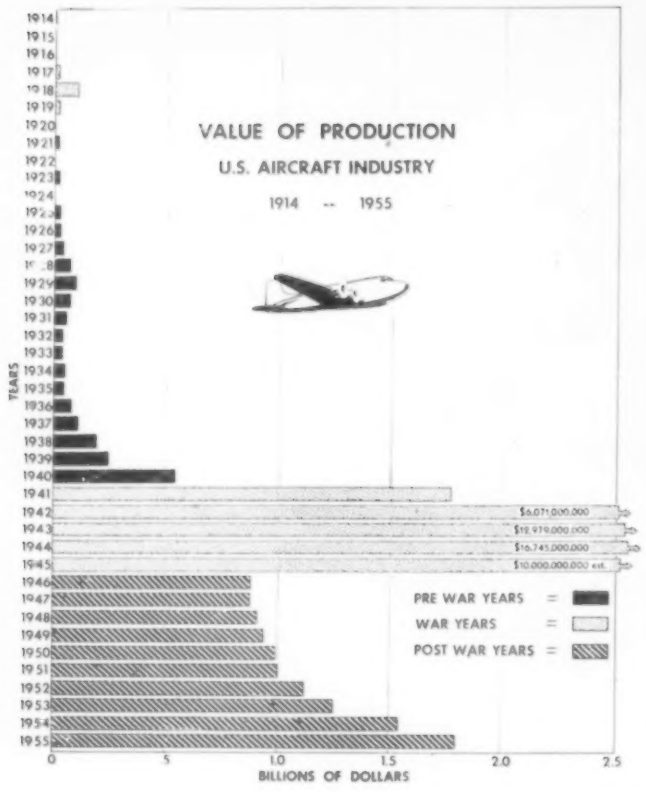
Would Create New Jobs

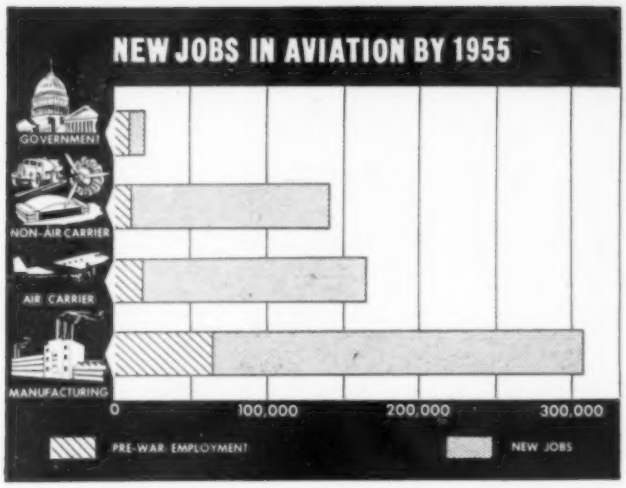
The increase from today's 30,000 personal planes is expected to provide a tremendous stimulus to the national economy. By 1955 a healthy aviation industry will be furnishing jobs, directly or indirectly, to 900,000 workers. Half of these workers will be engaged in the manufacture of engines, airframes, propellers, components, and spare parts for civil, export, and military requirements. Air carrier operations, non-scheduled, domestic, and international, will furnish 207,000 more jobs. Operations and maintenance of non-air-carrier planes should create another 150,000 jobs. Airport labor requirements will provide 60,000 jobs and government labor will furnish an estimated 25,000 more. The CAA maintains that these employment figures alone justify intensive Federal aid to aviation.

"Aviation is dwindling rapidly," the CAA warns, "from an industry which at its peak in November employed 2,101,000 people in its manufacturing phase alone to one that is expected to occupy no more than 200,000 employes in manufacturing by the end of 1945." A government program with an annual investment of $100,000,000, the CAA claims, would make certain the aviation industry does not lose its present vigor or fail to achieve its potential growth. Thus far the Federal government has spent approximately 800 million dollars on promoting civil aviation, in contrast to the billions devoted to other forms of transportation. Six and a half billion dollars, for example, were spent on highways from 1921 to 1940. The amount of Federal money necessary for civil aviation to achieve full growth during the next decade is still small in proportion to amounts already set aside for postwar highway, harbor, and similar programs.

Prospects Bright for Private Flying

Personal flying, the CAA study shows, offers the most dynamic possi-





The increase from today's 30,000 personal planes will provide a tremendous stimulus to the national economy, declares the CAA. What this increase will mean in value of aircraft production, is indicated by the chart at the left. Production should steadily increase to almost two billion dollars by 1955. As production is enlarged, more and more new jobs will be created. By 1955 the CAA predicts the aviation industry will furnish 756,000 more jobs than today and will, directly or indirectly, provide employment for 900,000 workers. How these jobs will be distributed the industry is shown above. These figures alone, the CAA maintains, justify intensive Federal aid to aviation.

bilities for immediate expansion. Today there are six times as many pilot certificates as in 1939; we had 31,264 private, commercial, and transport "tickets" in 1939 as compared to the present 132,432 regular and 51,276 student permits. In addition, 3,000,000 air forces members have lived, worked, and slept aviation while other men in various branches of the services have learned to respect and depend on the airplane. Likewise, families of air force members have come to look upon flying with increased interest. To these must be added hundreds of thousands of people who developed a desire to fly while building planes during the war.

A Crowell-Collier survey indicated 300,000 urban families of medium or high income listed an airplane as their No. 1 or No. 2 postwar purchase. A study made by the CAA at an AAF Redistribution Center revealed that 8 per cent of all officers and 4 per cent of the enlisted men questioned had made up their minds to purchase an airplane after the war and knew where the money was coming from. Applied to the entire armed forces, these percentages would indicate an immediate market for 125,000 personal planes.

400,000 Private Planes

To drive home the potential growth of personal flying, the CAA likens present-day private flying to the development of automobiles at the turn of the century. In 1903, there were 32,920 automobiles registered in the United States and, in 1945, there are approximately 30,000 aircraft certificated by the CAA. From 1900 to 1910, automobile registrations increased about 48 per cent a year and reached a total of 468,500 in 1910. On the same basis, only a 30 per cent expansion would mean 400,000 private planes in 1955. Two major factors contributed to the wide acceptance of the automobile. First, there was improvement in design with more dependable engines, more comfortable body arrangement, and pneumatic tires. Second, a network of paved highways was developed to replace the rutted, hub-deep muddy country roads. Research, more airports, and design improvements could mean as much to aviation.

Who Will Buy

Victor Perlo, chief, Industry Research Branch, War Production Board, has made a careful study to gauge the possible market for private airplanes during the next ten years. His findings are cited in the new CAA report.

By 1955, with reasonably full employment, the OPA estimates the average American income will be $2,850 a year. If, as previously, the buyer spends a third more than his year's earning to purchase vehicles for personal transportation, $3,800 would be available. Perlo believes the airplane, at least in its present version, will not replace the automobile. In that case, $3,800 would have to cover the combined cost of an airplane and an automobile. A light car should sell for $800, he says, and that would leave $3,000 for an airplane. Mass production should bring the price down. In fact, Perlo says, one manufacturer believes that with increasing volume he could cut prices as follows:

Airplane Type	Annual Production 100	10,000
Small trainer	$1,400 ea.	$ 900 ea.
Flivver type (2-place)	2,150	1,400
Family type (4-place)	4,000	2,600

Since three lightplane manufacturers each produced at least 1,000 planes or better in 1941, Perlo thinks mass production can be emphasized. By 1955, there will be 2,800,000 families who can afford a car and plane. Perlo eliminates people who will not be interested in owning an airplane and declares well over a million families will be able and willing to own a plane. This figure is well over the 400,000 estimate.

Need for Utility

It is interesting to note that while Perlo estimated 2,800,000 families will be able to own an airplane in 1955, only 1,000,000 will want to own one. Lack of utility has been and will be one of the reasons families do not want an airplane. For example, 18.7 per cent of the owners queried in a 1940 survey by the CAA listed lack of utility as a prime reason for giving up their planes. Too much time was spent in getting to and from airports, they emphasized. Prospects are good, declares Perlo, for correcting this situation. The CAA recently received an

appropriation to finance studies of castered or controllable landing gear for cross-wind landings. This would make single landing strips possible. Construction of more airports and the development of flaps and other devices to slow down landing speeds, will also increase utility.

Means must also be developed to make the lightplane usable under most weather conditions, the CAA says. If delay caused by "waiting for the weather to clear" is eliminated, a lot more people will want airplanes. A roadable airplane one could drive in bad weather would ease the weather problem, while a plane incorporating some of the principles of the helicopter would provide slow flight and safe approaches under instrument conditions. Another aid would be development of simple inexpensive instruments for lightplanes. VHF lightplanes radios, already announced by one company, will provide better navigational guidance for instrument approaches.

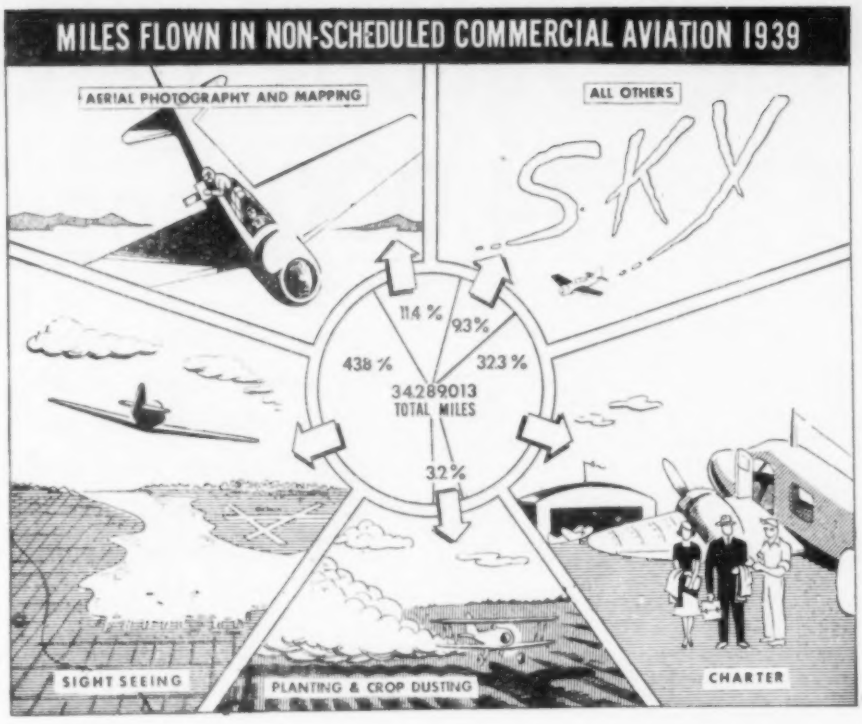
Comfort Stressed

Potential airplane owners, declares the CAA, are very much interested in improved comfort. Manufacturers have already promised roomy, well-upholstered cabins. Something else to consider, however, is the noise problem. Before the war, for example, many neighborhoods opposed establishment of airparks because of engine noise. The CAA suggests research toward reducing noise by changes in propeller design and development of mufflers.

Lower Operating Costs

High operating costs are another reason many families do not want an airplane. Today, for example, an airplane spark plug costs from three to four times as much as one for an automobile. Engine overhauls and expensive part replacements all tend to make annual operating costs a figure to be reckoned with. Insurance is also a large item. Because a number of factors are working to bring down these high operating costs, Perlo predicts it will be possible in ten years to operate a four-passenger airplane for $800 annually. Larger market volume and mass production will bring down cost of replacement parts. The development of safer, sturdier, more easily-repaired planes will result in insurance savings. For example, General Insurers of St. Louis has already announced a plan for insuring spin-proof planes at rates described as 35 to 50 per cent below current standards.

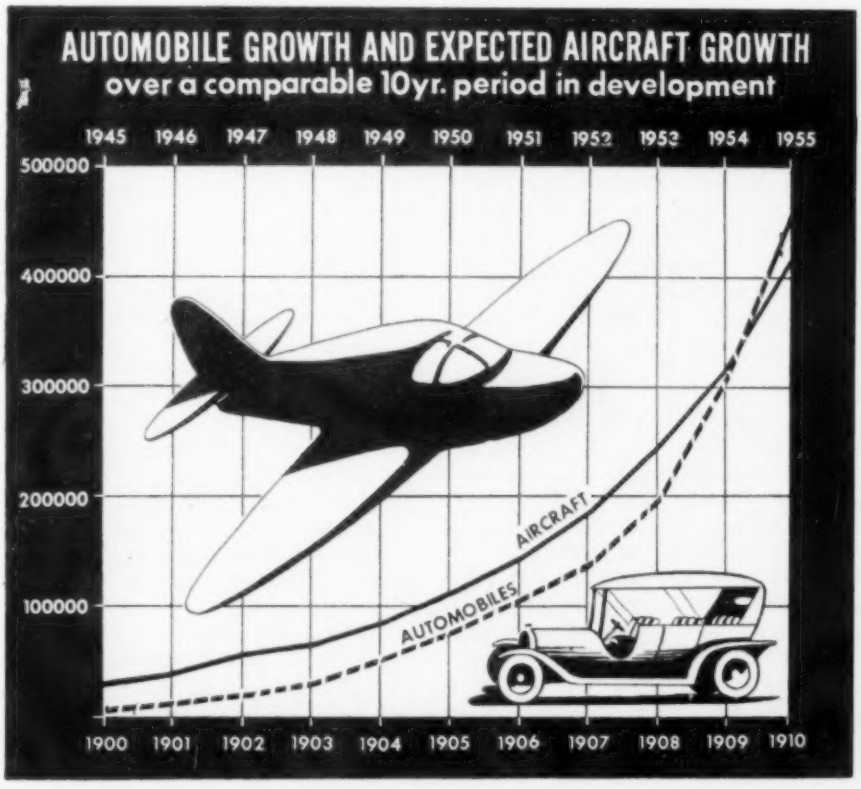
Hangar and instruction costs are also items that must be lowered. Prefabricated units will bring hangar costs down and all-metal airplane construction will lessen the effects from open storage. Instruction costs will be greatly reduced by the development of easier-to-fly airplanes and the recent easing of regulations to permit a private pilot to give instruction.



Need for Airport Program

Pointing to the immediate need for a Federal airport program, the CAA emphasizes that 47 per cent of the counties in the United States have no airports. (Less than 60 per cent of the population is within twenty-five miles of an airplane stop.) Of the 6,669 communities with populations of 1,000 or more, only 2,585 have airports. Big city airports are overcrowded—each field in places of more than 500,000 must serve an average population of 438,585. Although the number of airports has almost doubled

(*Continued on page 72*)



The Outlook Based on 34,000 Engine Orders

Using advance orders for power plants as an index, the leading engine producer forecasts 35,000 new planes and a $100,000,000 market for next year.

By C. J. REESE
President, Continental Motors Corp.

CONTINENTAL MOTORS Corporation made public a few weeks ago the fact that the lightplane industry in the United States is placing engine orders in quantities that forecast production of between 35,000 and 40,000 personal planes worth close to $100,000,000 during the next twelve months. Our statement was predicated upon our own orders for approximately 34,000 lightplane engines and upon our understanding after consultation with almost every lightplane manufacturer that Continental engines will power approximately 90 per cent of the personal planes now planned for production next year.

(EDITOR'S NOTE: *The largest number of personal-type aircraft built in any prewar year was* 3,600 *manufactured during* 1940, *according to Department of Commerce figures.*)

We released our figures and forecast because we felt that individual manufacturers would be vitally interested in an over-all picture of what the industry is expecting to do, as evidenced by its engine orders. Naturally, we realize that our over-all forecast is only as good as the sum total of individual manufacturers' estimates of the business they will do. If they have viewed the future too optimistically in placing engine orders, that fact will become apparent some months hence. Even if this should prove to be the case, we still believe that 1946 will be a great year for the lightplane industry—surpassing the best prewar year by such a wide margin as to leave no room for comparison.

Tooling for 10-Fold Increase

Be that as it may, Continental Motors is going along with the industry's plans and hopes as it did before the war, when its engines powered approximately 60 per cent of all lightplanes manufactured. Present engine orders forecast production approximately ten times as great next year as in 1940. We are setting up manufacturing facilities to handle this business—and more in succeeding years.

Further, Continental is looking considerably ahead of the coming year. We are setting our sights upon goals which the industry may realize five, ten and more years hence. In doing so we are not unmindful of the history of transportation in the United States over the past century. We recall that when the first railway train was widely heralded many years ago as destined to revolutionize travel throughout the world, large numbers of people were afraid to ride on it. We find reassurance in this fact when we are told today that the personal plane will never become popular with the masses of Americans.

Nor do we worry too much when skeptics tell us now that lightplanes cost too much to ever enjoy a wide market. We recall that just forty years ago—in 1906—only 33,200 passenger cars were made, and that they sold at an average price of approximately $2,300. That price isn't too far from the $2,500 which we estimate the average personal plane will sell for next year.

When we consider the progress that the automotive industry has made since 1906—the mechanical improvements, the additional safety, the multilane superhighways that criss-cross the country, the service facilities that are to be found in every wayside hamlet—we refuse to agree with the pessimists who cite present costs, lack of adequate landing fields, relatively low flying speeds, and scanty service facilities as reasons why the personal plane industry cannot hope to experience a comparable growth.

Knowing the engine business quite thoroughly from having been engaged in it for forty-four years, and having seen costs per horsepower of our engines decrease over the years as output increased and better ways of doing things were devised, we are positive that the aviation industry will follow the same path that the automobile industry pioneered many years ago. We see no valid reason why lightplanes of the future cannot incorporate improvements in performance, luxury of interior appointments, ease of operation and economy that will equal the gains made by the automobile industry. In advancing this opinion we are fully cognizant of the fact that average price of 3,744,000 automobiles made in 1941 was only $875. It is a mark for the airplane industry to shoot at.

The prospect of the lightplane industry, however, cannot be discussed solely in terms of its long-range outlook. Emerging from the war years in the strongest position in its history and with its sights set high, it is confronted with immediate problems of pressing importance.

One of the most important of these, in my opinion, is the control of manufacturing costs. Getting costs down, or even holding them at present levels, will require tremendous effort and resourcefulness, not only in the lightplane industry but also in all other industries. Labor troubles, disruptions to production, rising materials costs — all are symptomatic of inflationary tendencies whose effects cannot be dodged.

Another problem of the lightplane industry is the extension of adequate service facilities to owners of personal planes.

Plans for Lower Repair Costs

Because the maintenance and servicing of plane engines is an important part of the industry's over-all service problem, Continental Motors already has extended and improved its service to owners of planes using our engines. Currently we are developing two additional engine service programs, both designed to shorten the time required for engine rebuilding. Our Muskegon plant is establishing an engine "remanufacturing" department to handle with the utmost speed any engine rebuilding jobs that a plane owner or distributor wishes to have done at the factory. This is being done to backstop plane manufacturers using Con-

tinental engines with a powerful sales argument for the planes for we realize that to a prospective plane purchaser, two of the most important considerations are the make of its engine and the speed with which he can get expert service when it is needed. Continental distributors in the larger cities maintain service departments equipped to handle all kinds of reconditioning jobs, but in smaller communities where plane population is sparse, the company's factory rebuilding program will eliminate the necessity of a small distributor maintaining service facilities that cannot be self-sustaining.

To protect our distributors against loss of revenue through sending engine rebuilding jobs to the factory we propose to allow them customary discounts on new parts used and a commission on the actual labor involved in the job. Together, these items should avoid any loss of revenue by the distributor.

Further to meet the needs of users of Continental engines and limit their repair costs, we plan to offer them new engines in cases where a rebuilding job would run into excessive cost. While this will not be particularly important on ordinary engine service jobs, it will be greatly to the advantage of users desirous of putting back into operation engines picked up through war surplus disposal agencies.

Mass Production Prospects Good

Continental's airplane engine production during the coming year will be preponderantly in the 65 to 210 horsepower range covered by its A-65, C-75-85, A-100, C-115-125, C-165, C-185 and C-210 four- and six-cylinder models. In addition to our orders for engines in this power range, we have two substantial orders for our R-9A (525 horsepower) and GR-9A (600 horsepower) nine-cylinder radial engines for use in commercial planes. While orders for the A-65 and C-75-85 four-cylinder engines bulk largest on our books, it appears that manufacturers of planes using power units in the 100 to 210 horsepower range also may do an excellent business next year. Already our orders from established manufacturers for various six-cylinder models have mounted to sizeable proportions. Several new planes whose production is scheduled to start a few months hence also will use them.

In offering a greatly expanded line of four- and six-cylinder airplane engines for lightplanes, we anticipate that our present large volume of orders will permit the establishment of mass production on special purpose machine tools to a degree never before achieved by any builder of small plane engines. Our various four- and six-cylinder models have been designed to insure a high degree of interchangeability of parts, thereby simplifying service and parts problems, as well as contributing to manufacturing efficiency. Our hope now is that inflationary trends, which are becoming increasingly evident, will not prevent realization of manufacturing economies which would contribute to progress of the entire industry.

Many Improvements Expected

Continental research engineers are working on further design improvements to eliminate weight and increase strength, utilizing the knowledge and experience gained from working for the past five years on high-output engines for the Army Air Forces. Specifically, they are gradually incorporating in our present airplane engine lines some of the features developed by Continental Motors and Continental Aviation and Engineering in designing and building a high-output, twelve-cylinder, inverted V-type, liquid-cooled engine during the war years. This engine is believed to have established four world records and upset all previous military and commercial conceptions of airplane engine performance. Its power output was 1.5 horsepower per cubic inch of displacement. It weighed only 78/100ths of a pound per horsepower. Its construction was so simple as to require only about one-third as many parts as other liquid-cooled airplane engines and its maximum diameter was only 32 inches. While this engine is entirely dissimilar to our air-cooled models, many of its features are applicable to present models.

It is quite apparent that much improvement in the light aircraft engine field can still be made by refinement of detail design and by taking advantage of improved materials as they appear. It is definitely established that BMEP ratings of as high as 150 pounds per square inch are now possible as opposed to 125 pounds per square inch before the war. The use of magnesium alloys offers a very promising avenue of development to obtain lower weight per horsepower. The use of magnesium alloys is a new art which has only recently been learned but it is expected that as costs for this material become competitive with aluminum alloys, appreciable reduction of engine weights will be made.

Improvement in fuels will markedly improve the utility and convenience of light aircraft. The high octane fuel components which were needed for wartime aviation engine fuels are now being put into peacetime service with the result that a general rise in octane is expected. In addition, there is a strong trend toward the use of motor grade fuels in aircraft. When the objections have been satisfactorily dealt with it is expected that cost of operation of light aircraft will be substantially reduced.

Fuel injection, which has been pioneered by Continental for lightplane engines, represents a very positive advance toward increased safety and smoothness of operation. Continental will feature fuel injection for all of its airplane engines at surprisingly little additional cost.

Continental Motors' reconversion is well along in all engine divisions. Our A-65 and C-75-85 four-cylinder models went into limited production after VJ-Day and output is currently at scheduled levels. Our new six-cylinder A-100 and C-115-125 models went into production in Otober and output is being increased to meet customer requirements. Three additional six-cylinder models, the C-165, C-185 and C-210, are nearing the production stage and initial output will be for early 1946 delivery. ★ ★ ★

Republic Buys Aircooled Motors Corp.

A MAJOR step in Republic Aviation Corporation's low-price personal aircraft development has been taken with outright purchase of the Aircooled Motors Corporation of Syracuse, N. Y., with Republic paying $1,500,000 for all rights for manufacture of Franklin engines. Plans for purchasing new tooling to handle increased production of Franklins are under way.

Alfred Marchev, president of Republic, commented, "Now is the time to prove that prewar standards of airplane production must be brought up to date. If personal plane prices are to be brought within reason for all who want to fly comfortably and safely, the whole concept of airplane manufacture must be changed from 'handbuilt' design for the few to production design for the many."

A current $2,000,000 backlog of Franklin orders includes engines for Bell Aircraft Corp., Stinson Division of Consolidated Vultee, and the Army. Republic will use a large quantity of 212-hp. Franklins in its Seabee. Still other orders are being negotiated.

Sale of Aircooled Motors Corp. involved no changes in personnel of the engine company, and all officers will remain in their posts, it was said. Marchev became chairman of the board of Aircooled Motors.

CHANGES IN PRODUCTION MODEL SEABEE are revealed in this first photo showing addition of wing strut and pusher installation of 212-hp. Franklin engine. Radial cowling surrounds Franklin's cooling fan. Method of gear retraction isn't clear in photo but original gear design was eliminated. Prototype is shown at right.
—(Republic Aviation Corp. Photo.)

Private Flying Roundup:

Clinic Hears Problems Facing Private Fliers

By TOM ASHLEY

PRIVATE flying received more than usual consideration by the National Aviation Clinic in Oklahoma City last month, with leaders of all phases of aviation ferreting out for discussion and action some of the important problems influencing civil aviation expansion. Initiated three years ago in the midst of war, the Clinic is not devoted to any one segment of aviation but encompasses manufacturing, air defense, air transport, research, government agencies and all aviation interests. It operates as a national forum in which leaders institute planning for air progress in general, and its alertness in placing emphasis on private flying problems means the personal pilot and non-scheduled operator stand to gain energetic and influential representation.

Four of the sixteen resolutions adopted by the Clinic deal specifically with non-scheduled flying—they (a) went on record as opposing economic regulation of non-scheduled air carriers until adequate experience and study proves the need of such regulation, (b) urged Congress to provide for a permanent civilian pilot training program, (c) urged that municipalities encourage private fliers to use municipal airports unless extreme traffic congestion forces a division of activity, and (d) recommended that the CAA and state aviation commissions formulate and expedite a program of uniform air marking.

Accident Prevention Needed

Creation of a central clearing house, sponsored by the private aviation industry, to study air accident trends, disseminate accident prevention information and promote accident research was urged by the chief of the Army Air Forces' Office of Flying Safety, Colonel George C. Price. Delivering a timely warning, he emphasized that the full force of the air safety problem is shifting from military to civil aviation. Use of the AAF's voluminous air accident statistics and research studies is available to the industry, he said. Causes of AAF non-combat accidents, in which over 26,000 lives were lost and 22,000 aircraft destroyed (more than the Japs and Germans combined were able to wreck), were found to parallel civilian aircraft accident causes, and included "complicated and sometimes unsafe aircraft design; lack of adequate aircraft maintenance and inspection; hazards of weather and errors of forecasting; poor communications; absence of sufficient aids to navigation; poor design of airports; inefficiencies in airport management; lack of adequate pilot training; violations of flying regulations and carelessness of the human being." The AAF's safety expert said experience proved that pilot error, so often blamed, is not always the victim's fault —"what the pilot does wrong can often be traced to what someone else has failed to do right," he said.

Lower Flying Costs

Safe flying and fewer accidents will go far in lowering the costs of flight training and airplane rental, William D. Strohmeier, well known aviation public relations man, pointed out in another Clinic address. The CPTP safety record was so good that personal accident insurance was reduced from $12 per student originally to less than

$3. Hull insurance, averaging 14 to almost 16 per cent of the value of a new airplane, and liability and workmen's compensation insurance costs can be lowered by safety record improvement. Lower costs for solo rentals will result from development of single-seater lightplanes, Strohmeier pointed out, estimating that they should be profitable to the operator at rates of $3 to $4 per hour. "The flight training business needs the equivalent of a good five-cent cigar and the single-seater puddle jumpers may be the answer," he said.

"However, if a man were really serious in not only learning to fly but in using an aircraft for business and pleasure trips, the only logical thing for him to do would be to buy his own airplane to reduce his costs," Strohmeier said. He quoted a CAA study showing the cost per hour of a typical $2,000 private airplane to be as follows: $10.24 hourly, if flown 100 hours annually; $7.24 hourly if flown 150 hours per year; $6 hourly if flown 200 hours annually, and $4.59 per hour if flown twenty-five hours per month, with all figures including full insurance. Persons who don't have need for their own airplane or cannot afford one can lower their flying expenses through joint ownership, such as in a properly and efficiently operated club deal. Speculating on the effects of lower flying costs, Strohmeier estimated twice as many people could afford to learn to fly if the costs were reduced one-third and three to four times as many could afford it if the costs were cut in half.

Flying Technique Stymied

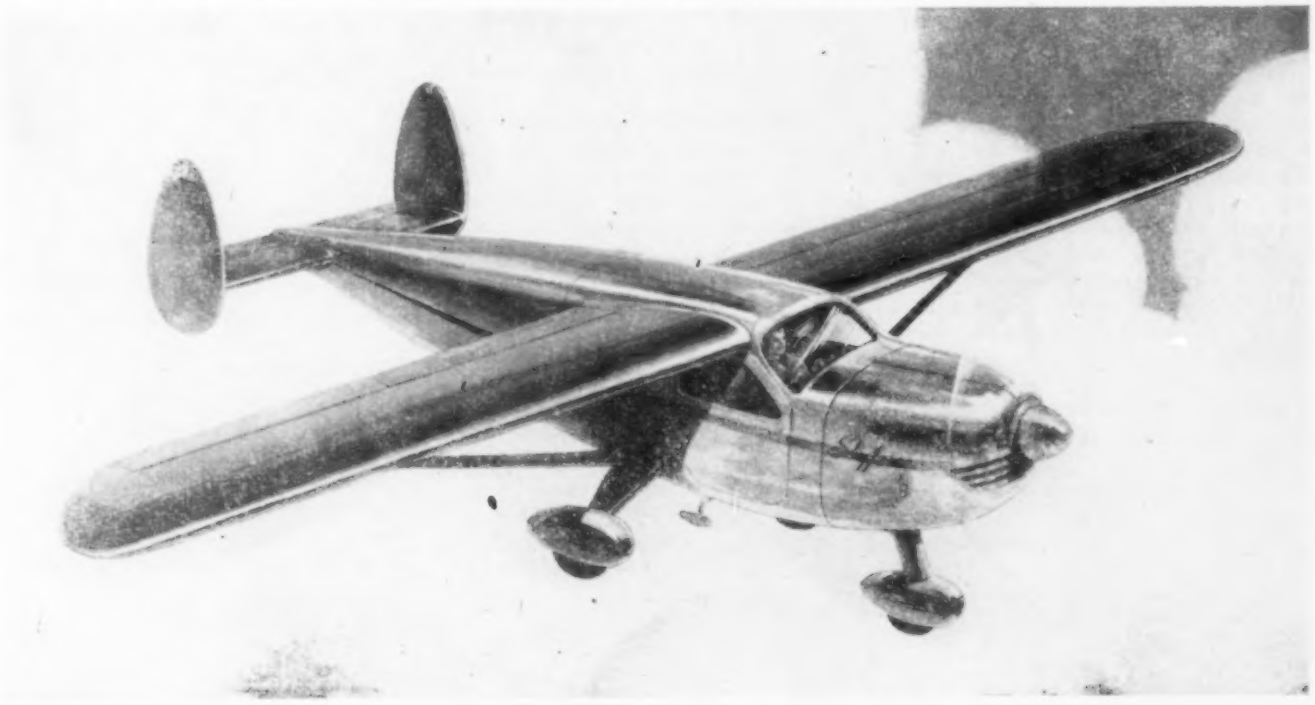
Antiquated methods of about 1917 are still being used in flying small airplanes and teaching students, and misguided concepts and regulations prevent improvement, according to Wolfgang Langewiesche, special consultant to the Personal Aircraft Council of the Aircraft Industries Association, and well-known author and test pilot. Discussing recent gains from CAR simplification, he said the regulations are "still the greatest single hindrance to the growth of private flying, next to the law of gravity itself." The degree of CAA control over flying no longer amounts to mere policing and fostering but has progressed to actual "management," and to "control of the art of aeronautics itself," Langewiesche charged, explaining: "They prescribe actual flying technique right down to the last detail; they tell us what are desirable airplane characteristics and what are not, what are proper methods of instruction and what are not. I think it is bad simply because no art, no science, no industry can be controlled by one head — and not become stagnant." As an example, he claimed that had it not been for the spin requirements in the private license tests, all small airplanes would long ago have been practically unspinnable by design, along the lines of the Stinson 105. There is really no excuse for building a small airplane which spins readily, and CAA emphasis on spin practice, far from keeping pilots from spinning in, kept the spinnable airplane in the picture year after year, he added.

He recommended rigid enforcement of traffic regulations but streamlining of the private license flight test to as nearly a "blank" as possible—"let the people develop their own flying technique, and if any particular point gives them trouble, let the industry invent something that will fix the trouble, such as a glide-control device, etc."

Better Designs Encouraged

Al Mooney, chief designer of the Culver Aircraft Corporation, said the new airworthiness requirements based on the category system will stimulate development of new personal aircraft designs and performance. Industry and government authorities have agreed that the arbitrary performance requirements common to all aircraft were not sound, and that a more practical purpose will be served by requiring the manufacturer to furnish the purchaser the approved performance figures actually made good during the approval tests. Rigid safety standards must be continually raised, he said, but the category system assures the buyer of having approved performance information available so he may select an airplane suited to his needs, and a designer will know upon which points his airplane is behind the parade and thus concentrate on improvement where actually needed, thus speeding development of personal plane utility, Mooney said. "Of most importance, individual resourcefulness in design is encouraged by this philosophy, since no airplane will be rejected because it is

REDESIGNED TWO-PLACE SKYFARER FOR POSTWAR PRODUCTION is of all-metal construction in contrast with the prewar Skyfarer's fabric covering. No details on the new model have been released by Tennessee Aircraft, Inc., a division of General Aircraft Corp., which is building the plane in Nashville. Its two-control system is described as "the most simplified" ever licensed by CAA.



NATIONAL AVIATION CLINIC LEADERS in Oklahoma City last month included Alfred Marchev, president of Republic Aviation Corp., left; John Paul Jones, Des Moines attorney and private flier, center, and Al Mooney, Culver Aircraft Corporation's chief designer. Over 800 persons took part in the Clinic's third annual sessions.

different but will be approved if it meets the rigid safety standards," the designer continued. "Then the buying public may determine its ultimate success or failure because of its utility value."

Closer "mixing" with the aviation public at the grass roots level was advocated for CAA headquarters officials and members of the Civil Aeronautics Board by Arthur I. Boreman of Des Moines, chairman of the CAA's Non-Scheduled Flying Advisory Committee. He said Administrator T. P. Wright had tried such mixing and admitted its benefits. "Such grass roots visits by CAB members might hasten the granting of at least a half-dozen experimental feederline certificates," he said, "and after such a trip they would obtain a much clearer and accurate picture of the possible growth of private flying, charter flying and other non-scheduled flying — they might even reject the airlines' propaganda for economic regulation of non-scheduled operations."

Clinic Resolutions

The Clinic's accomplishments are reflected in the following summary of resolutions adopted:

Surplus Airports: Urged earliest possible release and disposal of surplus airports, airport equipment and facilities now owned, leased or controlled by the government, to appropriate non-military agencies for use by civil aviation, and that interim permits be issued, when and where possible, authorizing such use, operation and maintenance of these airport properties.

Credit for Airport Funds Expended: Congress urged to authorize the CAA to recognize reasonable expenditures involved in the planning and construction of airports, and of land acquired, subsequent to the date of passage of the Airport Act, provided such plans, construction and land acquired are in harmony with the Federal aid airport system.

Uniform Air Marking: Recommended that CAA and state aeronautics commissions formulate and expedite a program of uniform air marking.

Extension of Air Transportation: Resolved that "it is the sense of the Clinic" that Congress express through appropriate legislation an approved expansion of the air transport system to include not only larger cities but also, through feederline service, the largest practicable number of smaller cities and towns. Urged Civil Aeronautics Board to accelerate, under existing legislation, action on proceedings designed to affect its position on pending feederline applications.

Federal Control of Contracts and Leases on Municipally-owned Airports: Favored maximum freedom of municipalities to establish, operate and expand airports and other facilities and opposed legislation that may unreasonably restrict such freedom.

Charges to Federal Agencies: Endorsed the proposal that Congress provide that political subdivisions may assess against Federal agencies reasonable charges for airport space, facilities and services used by such Federal agencies.

Control Tower Operations: Endorsed and gave support to aggressive CAA efforts to obtain Federal funds for the uninterrupted operation of all airport traffic control towers which CAA finds essential to an integrated Federal system of air traffic control.

Research: Clinic regarded the continuance and expansion of intensive civil and military aeronautical research as essential to national security and welfare.

Aviation Education: Recommended that National Aeronautic Association take initiative in co-ordinating aviation educational activities through establishment of a committee representing aviation and educational interests.

National Defense: Resolved that the Clinic strongly favors and urgently recommends the immediate establishment of a Secretary of Defense, with three under-secretaries for the Army, Navy and Air Power.

National Defense Information Service Center: Strongly recommended creation of a national defense information service center to assemble and disseminate authentic facts and publicize discussions of the proposed unified department of national defense.

Abolition of Interdepartmental Air Traffic Control Board: Favored immediate elimination of control of civil aviation activities by the IATCB and return of control exclusively to agencies established by statute for that purpose.

Civilian Pilot Training: Urged Congress to provide for a permanent program of civilian pilot training.

Use of Municipal Airports for Personal Flying: Urged that municipal airport management distinguish between transient and transportation personal flying as contrasted to training or practice flying to the end that transient and transportation personal flying be encouraged to use municipal airports in a safe manner and that where congestion exists requiring division of activity that first, adequate facilities be made available, and then training and practice flying be encouraged to use other adequate and less congested facilities.

Exemption of Non-Scheduled Air Carriers from Economic Regulation: Urged that (1) the order exempting non-scheduled air carriers from economic regulation be extended "until such time as adequate experience and study prove the need for such economic regulation;" (2) that persons engaging in non-scheduled transport for hire be required to register with CAB without imposing conditions other than to report to Board semi-annually "simple statistical and economic data" on their activities, and (3) that a new and revised Part 42 be submitted for industry's consideration, such revision not to differ in any essential respect from Part 43, except insofar as proper standards may be set for non-scheduled air carrier flights for hire under instrument conditions.

Joint Ownership of Airports: Commended to Congress and state legislatures the advisability of enacting enabling legislation to facilitate joint ownership of airports by communities of different states, and the exemption from taxation, by agreements of reciprocity, of airport facilities publicly owned but in a state other than the domicile of its owner.

The Clinic, sponsored jointly by the National Aeronautic Association and the Oklahoma City Chamber of Commerce, will be held next year on October 14-17. ★ ★ ★

Fact vs. Fiction Behind The Twin-Engine Cessna

The UC-78 is winning new friends and influencing pilots with its impressive twin-engine performance and low operating costs.

By A. H. KNOUFF

IF you have happened to hear any military pilots talking about the JRC or UC-78, your ears were probably filled with such expressions as the "bamboo bomber" or "flying cheesebox." You were probably told that it was too slow to get anywhere, that its performance on one engine was lousy, and that it was liable to flip onto its back in rough air.

It is not easy to determine just how much fact or fiction there is at the bottom of this extravagant ridicule. It is a fact that the Army and Navy issued orders to "beef up" the structure. A clue to the causes of structural failure may lie in the nickname "bamboo bomber." It is possible that the Cessna might have served as a peacetime private airplane without the necessity of beefing it up. But the fact that it was adopted as a twin-engine trainer and the belief of many that a military aircraft can stand anything, probably resulted in its being subjected to stresses for which it was not designed.

Circumstances Alter Cases

Even Cubs, Taylorcrafts, and Aeroncas fell victim to this psychological quirk. It was usually found that in the history of such cases the aircraft had been abused several times with no apparent damage, but each such abuse had left its mark in weakening the structure so that it eventually could not absorb the load of some ordinary maneuver.

This could easily have been true in the case of the Cessna. Having just completed a course of acrobatics in an airplane designed for that purpose, some of the boys probably thought they were supposed to do the same thing in the advanced trainer. If the maneuver itself did not exceed the design stress of the plane, it may well be that inept handling did. Probably they got away with it and tried it again and again. Then the routine inspection revealed a cracked spar or fitting with no recorded reason, or the weakened part failed during normal flight by some pilot who had nothing to do with the original damage.

As indicated by the epithets applied to this airplane, most of the detractors disparage the Cessna's wood and fabric construction. Most of them do not know that wood is stronger for its weight than metal. I recall similar criticism of the Lockheed Vega ten or fifteen years ago. Yet some of these are still flying. It is true that the UC-78 is not as strong as a pursuit plane, but it does not need to be. It does not have to do the same job. Regardless of whether it ever was weaker than it should have been, I haven't heard of further structural failures since the modification and placarding of this model against abnormal maneuvers.

Appearances of "Work Horse"

The Bobcat is slow when you have become accustomed to moving at around 200 mph. Most of today's pilots have skipped or forgotten the stage when we compared the speed of an airplane with that of an automobile. They will remember it when they have to consider how much speed

(Continued on page 70)

Many operators and business executives have acquired surplus Cessna UC-78's. Its 225-hp. Jacobs engines provide excellent take-off performance, 130-140-mph. cruising speed and efficient fuel consumption.

The Bumblebee
Powered Glider

No longer does the glider pilot need a tow car and 6,000 feet of rope—the Bumblebee takes off and climbs on its own power.

By WM. HAWLEY BOWLUS
Designer

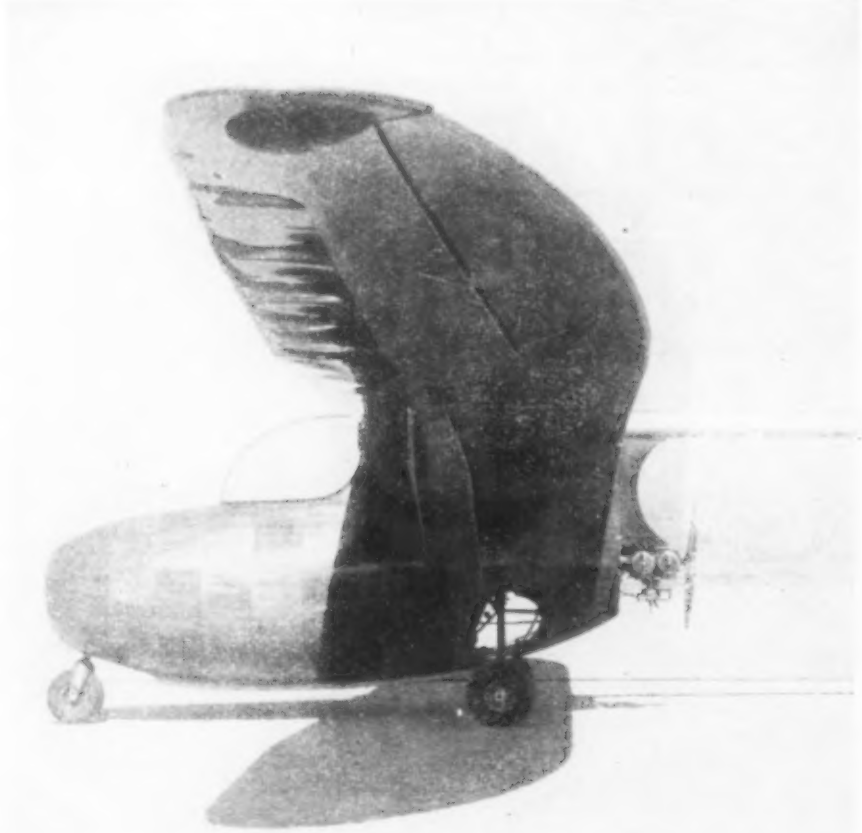
AFTER someone judiciously thought of the ski-lift, skiing became a popular American sport. And that is exactly what the new Bumblebee will do for gliding—*if* our expectations at Nelson Aircraft Corporation, Burbank, Calif., are realized. For the Bumblebee is an auxiliary powered, two-place glider which has at last taken the work out of soaring.

Equipped with a 4-cylinder opposed, 2-cycle engine developing 16 hp. at 3,500 rpm., our newest glider will take off under its own power in a 350-ft. run. It then will climb steadily at 38 mph., or 300 feet a minute, to an altitude suitable for soaring. There the pilot may cut off the engine, take advantage of the thermal, and glide to his heart's content.

No longer are 6,000 feet of rope and a tow car needed to take the glider pilot aloft, and so ends a lot of sweat and tears—not to mention some loss of religion, when the rope breaks on the run and the whole process has to start again from scratch.

How many of us glider pilots have spent a whole morning just trying to get off the ground! If it hadn't been for perseverance and the fact that a good thermal eventually carried us away—along with our earlier troubles—gliding would probably have never amounted to any sport at all. But therein lies the force behind the design of the Bumblebee. Engine powered, it will bring gliding within anyone's easy reach.

This means that the boy on the farm can buy and fly his own glider, now that the necessity of a two-mile run-



The buzzing exhaust noise from the high-speed, two-cycle engine earned the "Bumblebee" its unique name. Fuselage wheel wells are clearly visible in this side view. The two rear wheels have special cam action so they may be retracted at the proper angle. The nose wheel is steerable with miniature shimmy dampeners and a lock. The single boom tail is of hollow dural construction. The midget mixmaster has a 47-ft. wing span and a wing area of 168 sq. ft.

—(L. P. Clarke Photo.)

way for a tow car is gone. And anyone with a trailer and a backyard within range of a small airfield can enjoy soaring just as easily as some folks go canoeing. The 23-ft.-long Bumblebee presents no storage problem or expense, as its wings and tail surfaces can be dismantled and packed away in a garage.

Safety From Power

But aside from these sporting aspects, the auxiliary power also presents safety factors heretofore unknown to the glider pilot. For example, let's consider his old soaring problems—without auxiliary power. After a laborious take-off, he finally finds a thermal and proceeds to enjoy it—but at all times he must keep a sharp eye on his air strip and not stray too far from the fold. Then suddenly thermal activity drops to a minimum and he must execute a forced landing. Just about everything has happened to him at this point—he's had it, as they say Down Under.

Now, all of this mental and physical hazard is eliminated by the Bumblebee, so called because of its appearance and high motor pitch. The take-off under power is simple aviation, and once a thermal is found the pilot can forget home port until he is ready to return.

Fed by a 3-gallon gas tank, the pusher-type, engine powered glider has an hour and a half fuel capacity at full throttle and will cruise at 75 mph.

In event of minimum thermal activity at any time, the pilot can start the engine in mid-air and head for his airport. And instead of a forced landing, he comes in under horsepower.

Aside from sporting and safety values, the Bumblebee may also have practical purposes, such as for commuting from airport to airport for short business trips, from farm to city, and other short hauls. Long hauls are, of course, out of the question.

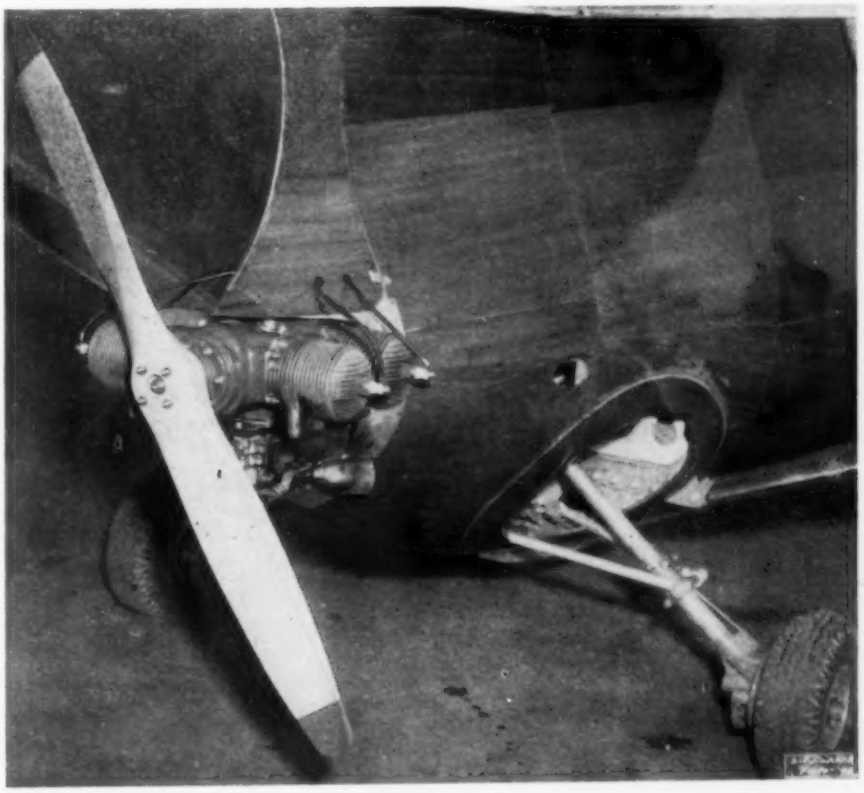
Marketed in Kit Form

The Bumblebee may also be advantageous in student pilot and aircraft construction programs conducted by flying schools, high schools and colleges. Since we plan to market the glider in kit form, as well as semi-finished and finished, the Bumblebee makes an excellent project for practical instruction in aircraft design and building. Classes may assemble the glider with limited tools and expense, and after completion obtain an NC certificate.

The net cost of instruction to the student glider pilot would also be de-

(Continued on page 66)

The diminutive Bumblebee, which is 23 feet long and 5 feet high, is shown here with its designer, William Hawley Bowlus. Scheduled to sell in kit form for less than $1,000, the glider is equipped with a conventional glider hook. Bowlus also plans to sell the Bumblebee without the 4-cylinder, 2-cycle engine pictured below. The tiny engine develops 16 hp. at 3,500 rpm., will lift the Bumblebee into the air after a 350-ft. run. The Bumblebee will then climb steadily to soaring altitude at 38 mph. and at 300 feet per minute.
—(L. P. Clarke Photos.)



Let's Quit Talking to Ourselves:

Design For The Masses

Suggestions on how to bring the public into aviation. Of millions who are air-minded, too few are fly-minded.

By T. BOWRING WOODBURY
President, Culver Aircraft Corporation
Wichita, Kansas

"WHAT'S the matter with aviation today?" Try that question out on any group of people, from the little woman's Tuesday Tat-and-Tea Club to a meeting of bank directors, and you'll get a look of scorn that implies you've been asleep longer than Rip Van Winkle. Everybody knows the whole country is air-minded.

On the remotest farm deep in the hills, old men and women who never drove an automobile in their seventy-five years speak familiarly of the B-29 and their grandson's exploits as a tail gunner on one of the giant bombers. Your own eight-year-old chatters about rocket ships, and smears the kitchen with dope and glue as he puts together a model of a Black Widow or a Mitchell bomber. Even Aunt Minnie, who worked in a war plant, now refers to the body of the old Ford as the "fuselage." "On the beam" and "Roger" have become part of our every-day language. And metropolitan department stores accord valuable space to displaying their latest commodity — the airplane. You can't get around it, this nation is *air-minded*.

For several decades, since the Wright brothers made their original flight, aviation has received more free publicity and front-page space than perhaps any other industry. The war has given aviation its greatest impetus, and has made the drama of flying a very real story to every home in the land. For years the industry has been striving to make the country air-minded; that goal has been achieved, the country *is* air-minded.

Joe Public Needs Consideration

What's wrong, then? Just this: While the public is air-minded, it is not *fly-minded*. In this country there are 130,000,000 air-minded people. But only 30,000 to 35,000 are fly-minded, and have evidenced it by buying planes and flying them. The difference between these figures represents the great virgin mass market to which the manufacture of personal airplanes must look for sales in the years ahead.

The fault lies with the industry itself — with the manufacturers, the operators and pilots, and even with the

1,210 CULVERS FOR 1946

WE are always a little wary of reported production schedules from companies who have not had actual wartime experience, and who have not tested their wings to find out what their production schedules can actually be on a new model. We are very hopeful that with the demand for light airplanes companies will hit their schedules—we owe it to the public who are buying these planes to be honest in our statements.

Culver has never missed a delivery scheduled to the Army since early in 1943. It's a record we are proud of, because it has meant the establishment in our plant of complete production systems that do work. As a result, any morning at 8 o'clock you will find the line moving at Culver and the planes rolling on schedule. Headaches encountered in making schedules and keeping them working are not important; what is important is that production figures given from that experience can be depended upon.

Culver intends to run two lines through the factory, inasmuch as the company is still in production on the Navy TD2C radio-controlled drone, and will be until June. Our commercial production will begin in February and Culver will produce 1,210 commercial airplanes in 1946. This figure will step up to 3,000 in 1947, and 3,600 in 1948, barring strikes and acts of God. If those do not delay us, demonstrators to dealers will be made in February, 1946, with customers' deliveries following on the heels of the demonstrators.

—T. Bowring Woodbury, President.

Evolution of the trail-blazing Culver Victory Model is shown in this "family reunion." From left to right are the V Model, two versions of Culver's radio-controlled target planes used by the armed forces, and the old prewar commercial Culver.

trade press. As an industry, we've been "talking to ourselves" all these years. We've drawn ourselves into a tight little circle, and chanted to each other of the mysteries and wonders of aviation. The public has heard us, but they have not been a part of us.

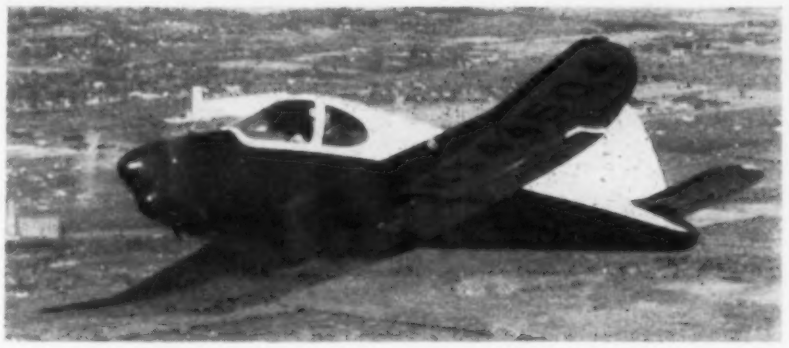
Take the pilots. Oh brother, if that hasn't been a closed fraternity, you never saw one. I'll never fogret when I first entered the aviation industry, not knowing a tailwind from a stockyards breeze. It made no difference whether you were a Brother Mason, 32nd Degree; a Brother Boy Scout, or a Brother Beta—if you weren't a pilot, you were on the outside looking in. There was something magic, something mystic about being able to fly, much like a secret cult too sacred to be shared with the uninitiated.

The manufacturers helped this myth along by putting all kinds of complicated instruments, pretty lights and mysterious looking gadgets into the cockpit. It was enough to scare away any man, however much he might want to fly, if he didn't have the time to go through a course in engineering and science to learn to operate such a plane.

Business executives early saw the advantage of owning an airplane, but many who never turned a hair at driving their own cars through the hazards of city traffic or up winding roads and hairpin turns in the mountains on vacation, hired a pilot to go along with their business plane, believing flying to be something only for those experts who had mastered its mysteries. Others confined their air travel to the airlines, and missed many of the advantages possible only through ownership of their own plane to travel their own schedules and routes. And the women, God bless 'em, what about them? The manufacturers scared them away before they ever got into a plane, for they put the first step of the airplane so high no modest woman would dare attempt it without wearing slacks. In the airplane of the past, it was a physical feat in itself to get into the plane: stretch, reach and pull to get yourself up; squeeze and wiggle and bend to get yourself down into the cockpit. Those planes were indeed designed for yesterday's rugged, die-hard pilots. Air-minded, the women might be; but fly-minded, they were not.

And the key to the last lock on the closed doors of the aviation fraternity has been turned by the trade magazines. They talk to the industry; they talk to the pilots. Industry, through their pages, advertises to the the industry and to the pilots. They talk to each other, too often in that bewildering language of technology, with pages and pages of baffling specifications, stress analyses, and exploded drawings that make a plane appear to the novice like something out of Buck Rogers. But what about poor old Joe Public, who is airminded enough, but who doesn't know dihedral from cathedral, or an airfoil from "propwash"? Nobody has given any thought to him, and yet he represents the great mass market which must be made fly-minded if personal plane manufacturers are to continue in business.

In the first place, the approach to the public has been wrong. Look at



TESTING THE CULVER 'V'

By EARL PRICE

Chief Test Pilot, Culver Aircraft Corporation

NOW they've done it. With seventeen years of experience and 8,000 hours to better qualify me for this job, I have a feeling that a kid of tender years and little experience could have done the same thing. For they've built an airplane that literally flies itself.

After flying everything the Army had from four-engine on down to the liaison jeeps, I came to Culver. And while waiting for them to tool up for production of a new military model, I worked as a mechanic. By the time I was made Chief Test Pilot I was thoroughly acquainted with everyone in the organization. Al Mooney, Chief Designer, and I might add one of the most logical and practical in the business, became one of my best friends and I called him just plain "Al."

When we first started production on our current Army model, the PQ-14, it was a real thrill to fly these fast and highly maneuverable little airplanes. I spent many an enjoyable hour testing them. But here at Culver we all had something in the future, for we knew of Al's work on the Model "V," which was to be the airplane we would produce for civilian consumption after the war. And for all of us it was a period of hard work, waiting, and anticipation, for we knew that it would be the best that Al had ever done. Then came the great day. And, brother, I can tell you first-hand it was worth all the waiting.

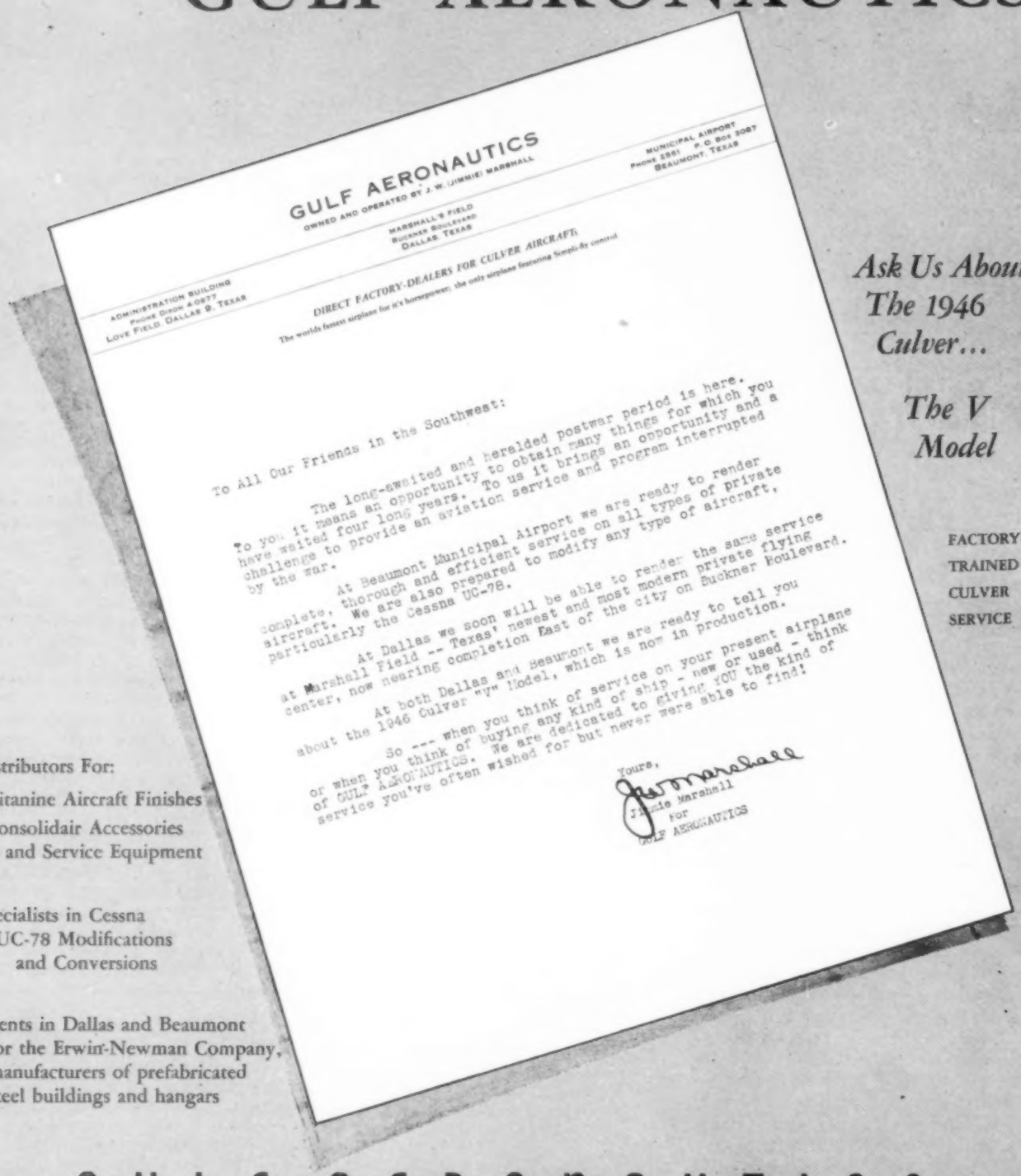
First a few taxi runs to feel it out on the ground, and it was everything I expected, so I decided to get it into the air and see how she responded. On the initial take-off run she hopped off the ground and was in the air before I knew it. When I brought the ship in after a short circle of the field, I was as tickled as a little kid, for she came in and set on like a veteran.

Mooney on First Hop

The first hop on the new Culver Model "V" was the culmination of years of study, design, and just plain hard work, with always the thought in mind of making the airplane a truly practical form of personal transportation. At first I had a tendency to be tense and keyed to a high pitch of expectancy, but after the first few minutes I knew we had something. For even though it was a fairly rough day the little job was exceedingly stable, both laterally and longitudinally. And even though the actual mechanics of flying the airplane was somewhat different from the earlier military models, I was amazed at the simplicity and the lack of concentrated effort the ship required.

It becomes harder and harder for me to bring the ship back to the field, for it is always amazing me with its inherent stability and glide and climb control, which leave me with nothing to do except to decide what I want it to do next. The flying public is due for the most pleasant surprise in personal aircraft history when these babies start rolling off the line. Each succeeding flight leaves me progressively more enthusiastic, although I was riding on clouds after that first flight when I had Al Mooney as passenger. ★ ★ ★

A Message from GULF AERONAUTICS



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OWNED AND OPERATED BY J. W. (JIMMIE) MARSHALL

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BEAUMONT, TEXAS

DIRECT FACTORY-DEALERS FOR CULVER AIRCRAFT
The worlds fastest airplane for it's horsepower; the only airplane featuring Simplified control

To All Our Friends in the Southwest:

The long-awaited and heralded postwar period is here. To you it means an opportunity to obtain many things for which you have waited four long years. To us it brings an opportunity and a challenge to provide an aviation service and program interrupted by the war.

At Beaumont Municipal Airport we are ready to render complete, thorough and efficient service on all types of private aircraft. We are also prepared to modify any type of aircraft, particularly the Cessna UC-78.

At Dallas we soon will be able to render the same service at Marshall Field -- Texas' newest and most modern private flying center, now nearing completion East of the city on Buckner Boulevard.

At both Dallas and Beaumont we are ready to tell you about the 1946 Culver "V" Model, which is now in production.

So --- when you think of service on your present airplane or when you think of buying any kind of ship - new or used - think of GULF AERONAUTICS. We are dedicated to giving YOU the kind of service you've often wished for but never were able to find!

Yours,
Jimmie Marshall
for
GULF AERONAUTICS

Ask Us About The 1946 Culver... The V Model

FACTORY-TRAINED CULVER SERVICE

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DALLAS
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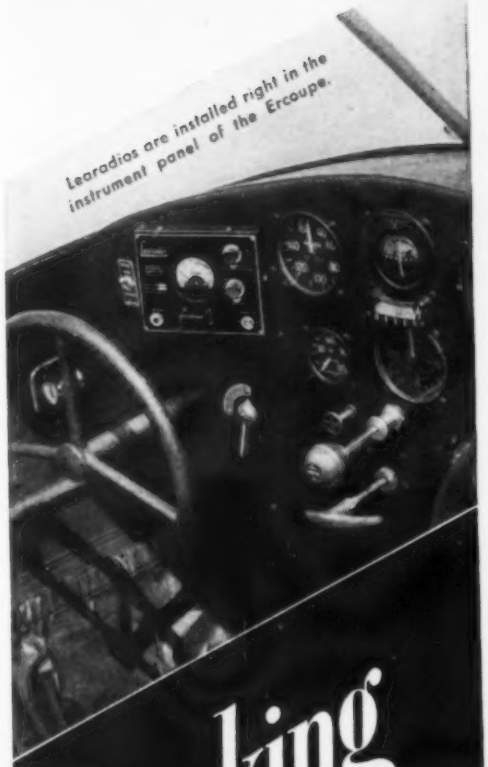


Learadios are installed right in the instrument panel of the Ercoupe.

Looking ahead WITH LEAR

How is the postwar Ercoupe going to look and fly?

Here it is—Engineering and Research Corporation's entry in the postwar field. The new Ercoupe will take off quickly, climb fast, cruise at 105 miles an hour. It will be spin- and stall-proof—and will be as easy to learn to fly as an automobile is to drive.

And, of course, Learadio will be recommended. As Fred E. Weick, Vice-President in charge of engineering, puts it:

"Our experience with Learadio has been eminently satisfactory from the start. That is why we have recommended it to Ercoupe users for the past five years and have made provision for its installation in the instrument panel."

Lear has been building fine radio instruments and direction-finding equipment since 1930. Right now, of course, all production is earmarked for government needs. With total victory, however, these outstanding instruments—built by airmen for airmen—will again be available for private planes. As the result of wartime experiment and development, they will be better and even more dependable than ever before.

LEAR, Incorporated

Radio Division: Grand Rapids 2, Michigan, Aircraft Radio Sales: 1860 Broadway, New York 23, N. Y., West Coast Subsidiary: Lear, Inc. of Calif., 1010 N. Highland Ave., Los Angeles 38, Calif.

Ercoupe — compact, easy to control, all-metal light-plane —certified spinproof.

Culver's key to simplified flying is interconnection of flap and stabilizer to provide automatic trimming. A retractable step facilitates access to the cockpit from leading edge of wing. Necessity of stopping starter-equipped engine promotes safety from propeller.

the airplane pictures in any magazine. Nine times out of ten, they're flight pictures—pictures of a plane swooping over mountain peaks, skimming high above the clouds, or tilted at an angle which sends shivers down the spine of the layman. The man who has never been up in an airplane has to start where he is, with his feet planted firmly on solid ground. His mind just can't jump that distance to put himself up in that beautiful plane gliding through the blue, high above the clouds; the plane has to come down to him. He must first see the plane down on his own level, where he can visualize himself walking around it, taking in its lines and structure—getting the feel of it as a vehicle he can imagine himself climbing into and learning to operate. He's air-minded enough, but he has to be "air-conditioned" before he becomes fly-minded. Why not a few pictures of the plane on the ground.

Eliminating Pilot Error

Let's quit talking to ourselves, and start talking to the public. Three and a half years ago, we at Culver decided to do just that. And we were determined that when we started talking to the man on the street, we were going to have an airplane *designed* for the man on the street—a plane that Joe Public could fly as easily as he drives his automobile.

The dream of such an airplane started with us when Culver designers and engineers saw their first radio-controlled target model going through its paces without a pilot. That dream became a reality when they saw the new Culver Model V make its maiden test flight in September of this year. During that three and a half years, Culver couldn't talk to anybody very much, for our military production was one of the top secrets of this war. Much of the information about radio-controlled flying is still a military secret, but it can be told that Culver was the only one of some twenty aircraft manufacturers to develop a successful full-scale model for radio-controlled airplanes, and that Culver was the sole production supplier to the armed forces of such radio-controlled planes throughout the war.

It's no secret that the new Culver Model V grew out of those years of experience in building radio-controlled planes. Every step in the development of the new Culver was tested "under fire" in the most gruelling testing ground an unarmed plane ever experienced—that of serving as a flying target for Uncle Sam's aerial and anti-aircraft gunners.

Culver engineers reasoned that if a plane could do all the things the Culver radio-controlled ship did without a pilot, it could be made practically free of flying's greatest hazard — pilot error. If a plane could land itself (target Culvers were known to land themselves safely when they got out of range of the mother control ship when their fuel supply was exhausted), then landing a plane could be automatic. In other words, Culver pledged itself to give Joe Public an airplane he could fly with a minimum of instruction, no matter how unmechanically minded he might be. He doesn't have to be a racetrack daredevil to drive a car; why should he be a stunt pilot to fly an airplane?

The secret of the new Culver lies in the Mooney Simpli-fly control, an exclusive Culver feature. In this revolutionary development, Culver engineers have put years of built-in pilot experience right in the airplane. Co-ordination, that word which has frightened fly-desire out of many a layman's mind, is an obsolete word in the Culver pilot's dictionary, for co-ordination on the new Culver is automatic. Simpli-fly control means that the airplane trims itself for novice with no time, the student pilot with a few hours, the private pilot with 60 or 75 hours and the pilot with 10,000 hours. Co-ordination gained by the experience of thousands of hours of flying is built into the plane itself.

Simpli-Fly Control Explained

How do we do it? First, by inherently built-in anti-stall and anti-spin characteristics, achieved through structure and design as well as through minimizing the shifting of the center of gravity; second, by an interconnection of the flap and the stabilizer, which automatically trims the airplane for the best condition of flight, whether it is take-off, climb, cruise, approach, or glide; third, by placing the Mooney Simpli-fly control dial on the panel of the airplane, a dial which does not read in degrees that might be forgotten, but which reads in plain English. When the dial is set for "Take-off" and the power is on, the airplane will leave the ground automatically at the correct moment for take-off, with nothing to do as far as the pilot is concerned. When the pilot climbs the airplane, he sets the indicator for "Climb" and the plane climbs at the best rate of climb. When he wants to level out, he sets the dial to read "Cruise," and the airplane cruises at its fastest speed. When the pilot is ready to come in, he sets the dial reading at "Approach," and the airplane automatically trims for the flattest possible glide. To land, the pilot merely moves the dial indicator to "Glide." The only thing the pilot has to do is keep the airplane "on course" by means of the wheel, which works just like the steering apparatus of an automobile. Yes, good experienced flying is made just that simple by means of the Mooney Simpli-fly control. In other words, take-off can be likened to low gear, climb to second gear, cruise to high gear; approach can be likened to throwing out the clutch, and glide to putting on the brake.

Is it any wonder we say that anyone who can drive a car can fly the new Victory Model Culver? ★ ★ ★

IT'S A "DREAM" OF A REALITY

Actually, the new Culver "Victory" is a "dream" of a plane. Its performance, simplicity of operation, and safety features indicate the ingenious leadership that lies behind its design and construction.

Our contribution to the success of this revolutionary private plane began over 27 years ago when the first Haskelite aircraft plywood was created . . . and developed through continuing research and testing to the point where its quality exceeds existant Army-Navy specifications and inaugurates a new standard for aircraft plywood.

Culver has selected Haskelite Plywood . . . a material that is most in demand where dependability and performance is paramount.

LIGHT WEIGHT + HIGH RIGIDITY = HASKELITE

HASKELITE MANUFACTURING CORPORATION GRAND RAPIDS 2, MICHIGAN

NEW YORK • CLEVELAND • ST. LOUIS • CHICAGO • DETROIT • IN CANADA: RAILWAY & POWER ENGINEERING CORP., LTD.

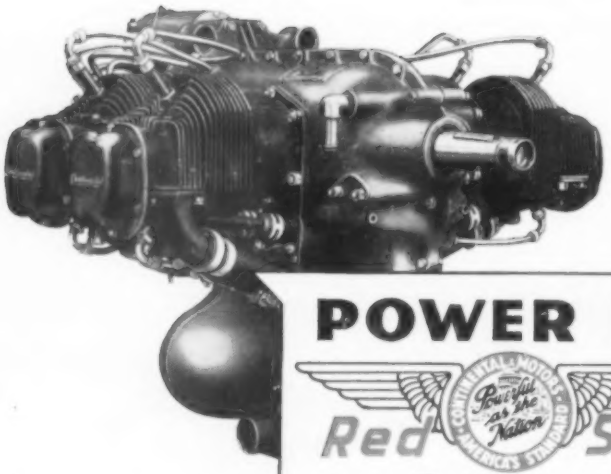
THE NEW CULVER MODEL "V"

WHY CULVER CHOSE CONTINENTAL RED SEAL ENGINE FOR NEW MODEL "V"

"Chief among the reasons why Continental Red Seal Engine was chosen for the new Culver model "V" are performance — including power, economy and proven dependability — and acceptance by the flying public which has shown overwhelming preference for Continental power.

"Another consideration, important not only to us but also to the development of postwar private flying, is the fact that Continental backs its owners with parts and service facilities from coast to coast."

Robert R. Nadal
General Sales Manager
CULVER AIRCRAFT CORP.,
Wichita, Kansas



This is the C-85 Red Seal engine, made by Continental Motors Corp. which is standard equipment on the "V".

POWER BY
Red Seal
Engines
CONTINENTAL

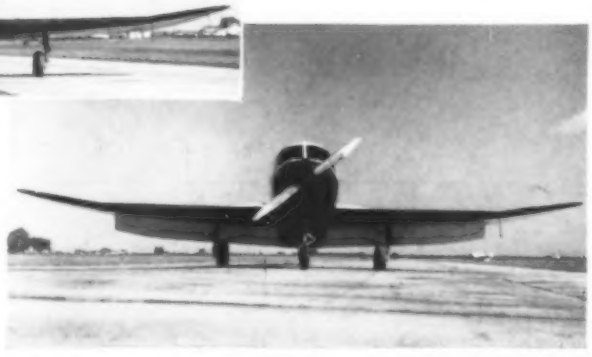
Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

THE 1946 CULVER "VICTORY MODEL"

This photograph printed horizontally for convenience in framing.

CULVER WAS

This headon view of the new Culver Model V shows the upturned wing tips which add so much to its stability and ease of flying. Evident too are the unusually clean lines that make it the fastest light ship in the world for its horsepower.



Clearly shown here is the unusually large flap of the new Culver Model V . . . partly responsible for easy flying and unspinable characteristics of the latest of the Culver line. Also clearly shown is the sturdy, tricycle gear which makes ground handling as easy as driving an automobile.

Culver has tried to be conservative in its advertising, limiting its statements to generalities and the phrase that the new Culver "V" Model would be "worth waiting for."

That new Model "V" has been undergoing test flights at the factory since September and now we feel the story can honestly be told. It is the only airplane to introduce the new Mooney SIMPLI-FLY* Control, which makes flying simple and safe . . . so simple, as a matter of fact, that the Culver becomes the airplane pilots will enjoy but a grandmother can fly. SIMPLI-FLY Control entails the basic interconnection of wing flaps with the stabilizer, together with a flight control dial indicating to the pilot the

optimum settings to obtain the best performance of the airplane, and at such setting the airplane will, inherently, tend to trim for optimum performance, thus greatly reducing the hazards from the art of flying and allowing the novice and experienced pilot alike to fly safely and simply.

In other words, set the dial for "take-off" or low gear, advance the throttle and the ship takes off. Throw the dial in second gear or "climb" and the airplane climbs at optimum. Put it in high, or set the dial for "cruise" and the airplane levels out at cruising. The landing is just as simple.

There are many other innovations and features such as: tricycle electrically retractable gear with auxiliary manual control; low wing design; controllable pitch propeller; fuel injection to eliminate carburetor icing, bigger wheels, in excess of 700 miles cruising range, individually adjustable air-foam seats, beautiful interior; not to mention that the new CULVER IS STILL THE WORLD'S FASTEST LIGHT AIRPLANE FOR A GIVEN HORSEPOWER.

All of this didn't just happen. It has required months and years of experiment. And what might seem like an entirely new airplane to the public becomes an old story to Culver for it is the culmination of concentrated design experience on Army and Navy radio controlled airplanes on which Culver has been the sole supplier to the government during the war. In other words, heredity has played its part in the development of the only new land plane to be introduced by any airplane manufacturer so far postwar.

If the airplane that is in your plans does not include the safety and design features of the new Culver Model "V" it might be a new, but an already obsolete aircraft.

So may we humbly suggest, before you buy, that you let one of our dealers tell you about the new Culver Model "V." Or if you prefer, a request to the factory will bring you a fully illustrated color brochure explaining and describing the only absolutely new airplane on the market which is years ahead of its time. And you'll agree with us, IT WAS WORTH WAITING FOR.

*Trademark

worth waiting for!

The new Culver Model "V" meets the Dear Departed Friend.

Wing Span	29′
Length (Overall)	20-6
Height (Rudder)	6-9½
Propeller Ground Clearance (Average)	12″
Stabilizer Span	9-2
Wing Dihedral 2°-40′ Tip	10°
Wing Area including Flap Area	125.9
Landing Gear Tread	8′ - 1½″
Main Gear Tire Size	600 x 6
Nose Gear Tire Size	500 x 4
Cabin Width (Inside)	40″
Baggage Capacity (Forward)	60 lbs.
Duffle Capacity (Rear)	20 lbs.
Gas Capacity	35 gals.
Cruising Range in Excess of	720 miles
Cruising Speed	Faster than the Old Culver*
Continental 85 HP Fuel Injection Engine	
Useful Load	681 lbs.

**Culver does not wish to quote definite performance figures until certified by the Civil Aeronautics Administration.*

FOR THE LATEST INFORMATION WRITE CULVER AIRCRAFT CORP., WICHITA 1, KANS.

It's CULVER FOR CROSS COUNTRY

CULVER DEALERS SAY

. . . after a demonstration at the factory:

"We expected something evolutionary but nothing so revolutionary." Ken Hockensmith and Rege Ott; Pacific Skycraft Co., Inc., 722 SW 18th, Portland 5, Oregon. Serving Washington and Oregon.

"M-m-m-m-m-m-m-m. Swell!" Otis Edgerton; SouthernAire Sales and Service, Municipal Airport, Alexandria, Louisiana. Serving Louisiana, Mississippi and southern Arkansas.

"Greatest improvement in aviation in the last decade." Harry Royster and E. G. (Slim) Kidwell, Standard Aircraft Co., Central Airport, 13610 South Central Avenue, Los Angeles 2, California. Serving Southern California.

"This is the airplane that makes your annual trip a weekend jaunt." Judson G. Sherrill; Sherrillaire, Inc., Northfield Airport, Richmond, Virginia. Serving Virginia and the District of Columbia.

"Culver's still way ahead of the industry." Paul L. Cromelin; Augusta, Georgia. Serving Georgia, Western North Carolina and South Carolina.

"We're in business . . . we're in business . . . we're in business." J. W. Marshall; Gulf Aeronautics, Municipal Airport, Beaumont, Texas. Serving Texas.

"A new day for aviation. Wait 'til the business man sees this!" Alton H. Walker; Walker Aircraft Sales, Monterey Peninsula Airport, Monterey, California. Serving northern California.

"A mighty fine airplane. Just the thing we've been waiting for." Jerry Francis and Howard Angell; Advanced Aviation Association, Capital City Airport, Lansing, Michigan. Serving Michigan.

"Culver was five years ahead in 1941, and the new model puts Culver ten years ahead. America's airpiane." I. W. Baldwin and Gordon Diver; Civilian Aircraft Inc., Lincoln Bank Tower, Fort Wayne, Indiana. Serving Indiana.

S A F E T Y • S P E E D • S I M P L I C I T Y

IT'S NOT FAR IN A CULVER

STANDARD AIRCRAFT CO.

Southern California Headquarters
FOR CULVER OWNERS AND THEIR FRIENDS
A Warm Welcome Awaits You at
STANDARD'S CENTRAL AIRPORT HEADQUARTERS

PHONE NEVADA 6-2009

FOR YOU

1 Standard courtesy
2 Restaurant
3 Modern apartments
4 Bus service
5 Rental cars available for your pleasure

FOR YOUR CROSS COUNTRY CULVER

1 Economical standard one-stop Culver service
2 Standard repair rates
3 Factory trained mechanics
4 Genuine Culver parts
5 Standard approved modern equipment
6 Hangar space
7 All facilities at modern Central Airport designed for the private pilot, your safety, convenience, and pleasure

For Those Who Plan to Fly

We will teach you to fly a Culver, America's finest cross country ship, in a very short time.

For Owners of Other Ships

Fair trade-in allowance for your ship on trade for new or used Culver Cross Country Airplane.

CULVER CONTINENTAL DISTRIBUTOR

GET THERE FIRST • STAY LATER
ARRIVE ON TIME SAFELY

Your Credit is Good at Standard Time-Payments

See Standard's New Culver Home
ON CENTRAL AIRPORT L-A

Sales Representatives in
SANTA BARBARA • IMPERIAL
SAN BERNARDINO
SAN DIEGO • BAKERSFIELD
VENTURA • OXNARD
SANTA MARIA

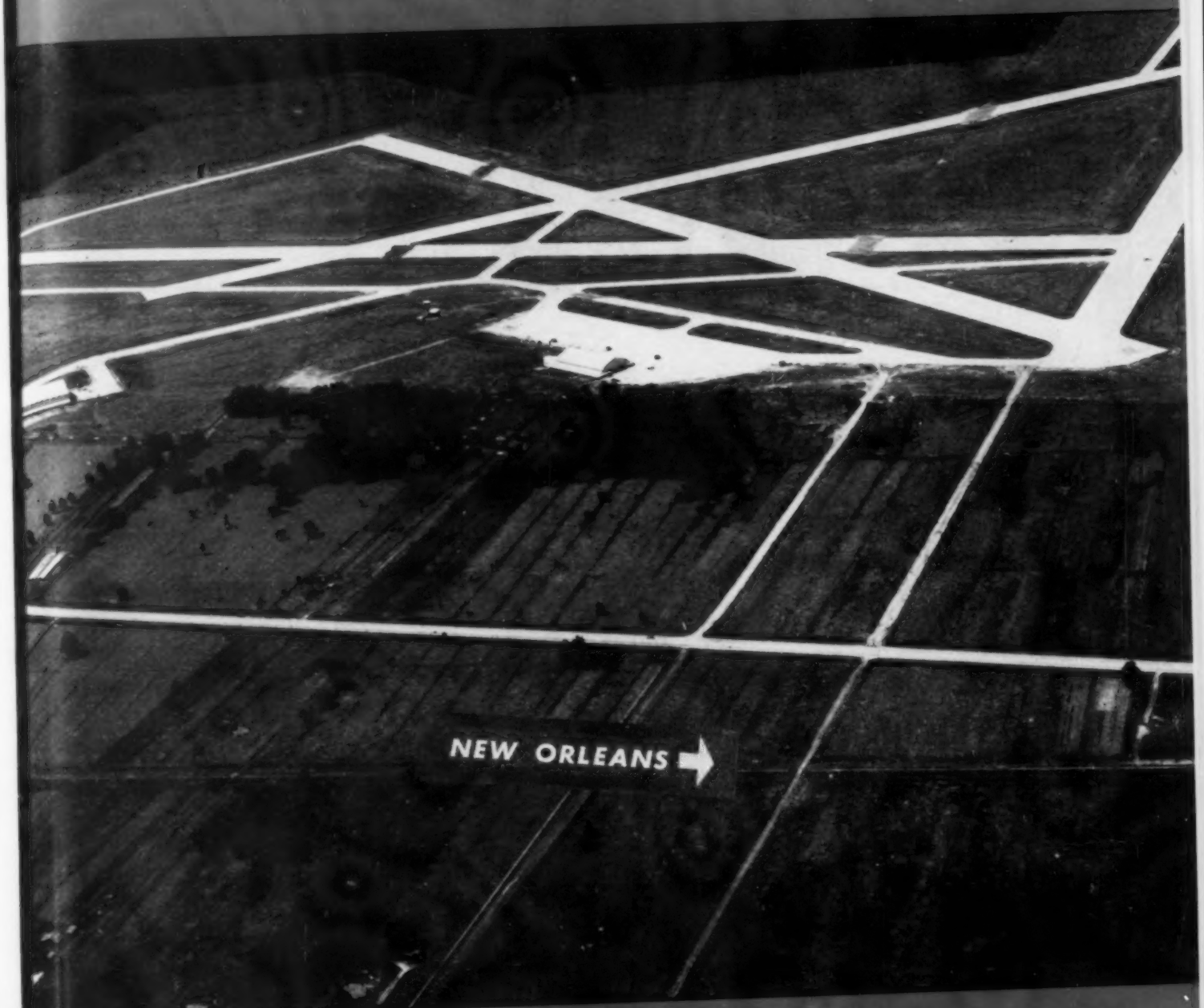
LIKE YOU, WE ARE PROUD OF OUR WAR RECORD AND OUR BEAUTIFUL NEW CULVER

MODERN AIRPORTS

VOLUME III

December, 1945

NUMBER 4



New Orleans' new Moisant International Airport will be dedicated January 12 and 13 and will serve six commercial airlines. It has three 5,000-foot and one 7,000-foot concrete runways, and covers an area of 1,360 acres. Equipped with VHF instrument landing system, it also has neon approach lane and contact lights. Located 10 miles west of New Orleans, the airport will initially handle 36 airline schedules a day. D. O. Longstaff will manage the airport in addition to his duties as executive director of the City of New Orleans.

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Municipal Planning and Airport Management

Lack of authority, a multitude of bosses and low salaries can make the airport manager's lot difficult.

By LEIGH C. FISHER

THERE is a definite need for an aviation commission in each community to supervise the construction and operation of the airport. In many communities throughout the country today, the airport manager finds that his superior may be any one of a number of public officials, including those of the department of public works, department of parks, public utilities, or the executive head of the city government. The airport manager is charged with the responsibility of working with these men. To date such a method for delegating authority to the airport manager has not proved to be the most efficient.

While it is admitted that airports operating under these circumstances are fairly well managed, this operation has been developed in spite of, rather than because of, the lines of authority which the airport manager must observe.

For these reasons and for the inherent desirability of offering to any employe or supervisor a specific authority to do this job, it seems advisable that some method other than those already established be developed to aid the airport manager in developing a profitable and satisfactory airport operation.

One means of accomplishing this is the establishment of an aviation commission, charged with the responsibility of working directly with the airport manager. This commission should investigate and specify what authority the airport manager is to be granted. When the authority to be given him has been decided upon, he should be called in and specifically instructed as to what phases of the operation he has authority to supervise and how complete this authority is.

Authority Necessary

It seems that no matter what the cost of the airport, the responsibility is still the same. The manager must operate, supervise, and manage the airport to the best interests of the community and the public, while making an effort to establish a financially successful operation. In most cases, all this responsibility has been given the manager but a corresponding amount of authority has never been offered. It is impractical to expect the airport manager to operate in a satisfactory, business-like and profitable manner as long as the authority necessary to develop such an operation does not equal the responsibility for attaining it. If it is either decided or believed that the airport manager does not have the necessary training or experience to meet the authority and responsibility that is placed in him, he should be relieved of his duties and a new manager selected. In this respect, it will be seen that the two phases necessary to hold the manager responsible will be the outlining of his responsibilities and the granting of authority necessary to discharge them.

Not only does the authority and responsibility of the manager have to be outlined, but if the community expects and desires a profitable and satisfactory operation, it must consider the knowledge, experience, and needs of the airport manager in his position of actually being on the airport and seeing its needs and possibilities. This means that the commission must coordinate all its actions and decisions on financial, budget, and policy matters with the airport manager so that the airport's service and benefits to the community will not be limited by a lack of integration between the governing body in the community and the airport manager.

In connection with financial questions, the manager should be charged with the responsibility of submitting a general budget, including salaries, equipment costs, operating expenses, and other financial needs of the airport sufficient to meet all expected operating and development costs. Any question of financing necessary to expand the airport or add additional buildings or facilities should be discussed with the manager or co-ordinated with him so that the repayments of the bonds or debts incurred in such expansion can be derived from the revenue expected in the future operation of the airport. In connection with this matter of financing within the revenue potentiality of the airport, it is recommended that the experience of the airport manager, derived from his past operation of the airport and his knowledge of its revenue potentiality, should be considered before determin-

ing any new indebtedness or bond issue. Here again co-operation and integration between the aviation commission and the airport manager must be insured.

The question of policy matters which will affect the airport's operation, expansion or development is another point where this co-operation will be needed. Whether airline charges are to be reduced or increased, or any question as to negotiations of leases and contracts with airport users or tenants, should be thoroughly discussed with the manager to see that the over-all, long-range policy decided upon will meet the airport's operating conditions.

After the authority and responsibility of the manager have been established, the commission should charge the manager with the duties of supervising all activities at the airport. The manager should make requisitions and expenditures as are found necessary for day-to-day operation. All long-range financial and policy matters will be settled by the aviation commission after consultation with the airport manager.

Politics Promotes Inefficiency

In the past there have been indications at certain airports throughout the country that in the supervision of the airport, a certain amount of political control and intrigue is included. For example, one story tells of an airport manager who requisitioned a city crew and equipment to mow his airport. It seems that three days were used in mowing and then the crew with its equipment left the airport. Some time later, the airport manager received a memo from the other city department from which he had requisitioned the crew and equipment, and on it was stated that the amount charged to the airport for the use of crew and equipment for mowing was based on five days usage. Upon investigation, it was found that the crew had stopped after leaving the airport and mowed some city-owned park lands and areaways and upon returning to the city department had charged the airport for the full five-day period. There could be various reasons for such actions. One would be that there was a policy in the city's government to make the airport's financial operation look as discouraging as possible, or another might be that they had wanted to show a low operating cost on the parks. In either case, a procedure such as this does not increase the prestige, services, or advantages of the airport. It creates a condition that could become dangerous if it were followed universally.

In connection with all phases of the airport's work where equipment, supplies, or personnel are requisitioned from other city departments, it is necessary for the airport manager to have the authority to supervise their work and to turn in to the city's accounting department his statement of the work done and the time consumed. His statement will be checked against that of the other city department lending the supplies and personnel, and if any variance occurs, it will be settled immediately and properly. One reason for a close cost control of such airport financial questions is that the airport's financial statement and accounts will be considered during any negotiations of leases and contracts with airport users, and any such excess charges or non-business-like applications of service charges might reflect upon the whole financial structure of the airport.

If it is decided that the manager does not have the necessary training or experience to meet the authority and responsibility that is placed in him, he should be relieved of his duties and a new manager selected.

The manager should be charged with the responsibility of submitting a general budget, including salaries, equipment costs, operating expenses, and other financial needs sufficient to meet all expected operating costs.

The supervision of the airport by the manager must not only include such questions as requisitions of supplies and personnel, but should also include recommendations to the aviation commission about the lessees, concessionaires, and operators allowed to operate on or use the airport.

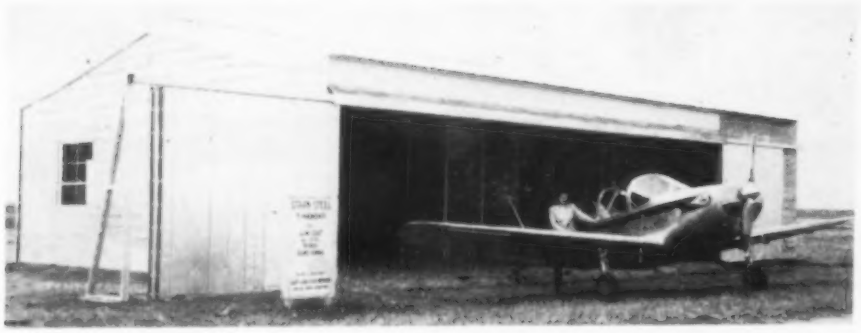
The manager must operate, supervise, and manage the airport to the best interests of the community and the public, while making an effort to establish a financially-successful operation.

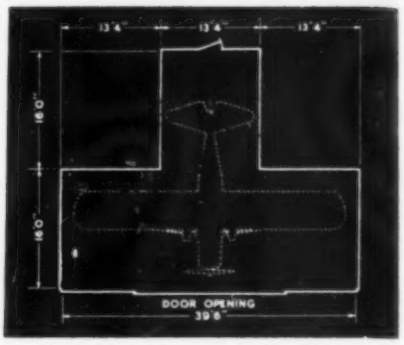
One other condition which must be met is that of insuring the position of the airport manager. To date, in the percentage of the communities throughout the country, the airport manager has no official status other than as an employe of the community. Only at a few airports does the airport manager have a contract and at even fewer airports is he under civil service. It seems apparent that for the manager to produce to the best of his abilities, and to provide some incentive for creative thinking and development at the airport by the manager, his position must have some semblance of security. One false move in his personal life or some personal difficulty with a member of the city government should not cause the possible loss of his position or decrease in co-operation between the manager and the governing group or person.

Adequate Salary Required

Directly connected with this security of position is the matter of salary which is to be paid to the airport manager. Salaries of airport managers in this country range from a low of $1,200 to approximately $10,000, with the average being under $3,500. There seems to be little doubt that the calibre of managers available at this salary is of necessity lower than that which is required to have a satisfactory and profitable airport operation. Most of the airport managers today accept these salaries and live within them only for the reason that they enjoy their work and feel that this condition of low salaries is temporary, and as the importance of their positions is recognized, the salary will be increased to a point commensurate with their responsibility and authority. The av-

(Continued on page 61)





This Globe Swift, parked in front of the Stran-Steel T-hangar exhibit at Bethany Airport, Oklahoma City, demonstrates size of the hangar unit and accessibility provided by the lightweight sliding steel doors. The unit shown here is complete with separate room for office space (note window at left). The top view drawing, at the right, indicates how a lightplane fits into the Stran-Steel T-hangar and gives unit dimensions.

Simple Construction For Steel T-Hangars

Sliding full-access doors, office space, package delivery, simple erection or disassembly are features of Stran-Steel units.

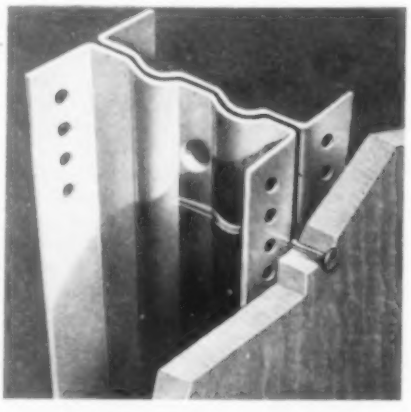
STRAN-STEEL T-hangar units, based on methods and materials used for Navy Quonsets, were displayed for the first time at the National Aviation Clinic in Oklahoma City by their manufacturer, the Great Lakes Steel Corporation of Detroit, Michigan.

In contrast to the round-roofed Quonset manufactured for the Navy by the Great Lakes company, the new T-hangar is straight-sided and the roof slopes from front to rear, permitting either nesting or straight-line grouping of additional units. Wall and roof materials are of new architectural-fluted bright galvanized steel sheeting and are secured by nails driven into the framework's patented nailing groove. Basic building and extensions may be dismantled and re-erected at will. Optional equipment includes a section which may be installed in a T corner to create a separate room for office space.

Designed to withstand a 65-mph. wind and a live-load of 25 pounds per square foot, the hangar's structural strength permits use of overhead framing to suspend tackle for lifting engines. Maximum hangar depth is 32 feet, providing 16-foot depths for wing and tail-section areas. The front opening is 39 feet, 6 inches, with 9-foot door height. Overhead-hung, lightweight, steel doors, 10 feet wide and 9 feet high, are composed of two inside and two outside leaves. When rolled back, the bird proof doors provide access to the full width of the hangar opening.

Standard fabrication and package delivery, the manufacturer declares, will provide substantial savings in total cost plus increased safety as compared with other structures. The foundation suggested by the manufacturer can be prepared with a post-hole digger. Approximately two cubic yards of excavation and concrete are needed for each unit when built in rows of ten.

The Stran-Steel T-hangars are scheduled to sell for $782 without front doors and for $1,050 complete with sliding doors. (prices are f.o.b., Ecrose, Michigan). The price is lower when several units are purchased. For instance, units of five sell for $4,394 or $878.80 each, complete with sliding doors. The corner office or storage space addition, with one metal swing door and metal window, costs an extra $186. A rear swing door for the T-unit sells for $34.

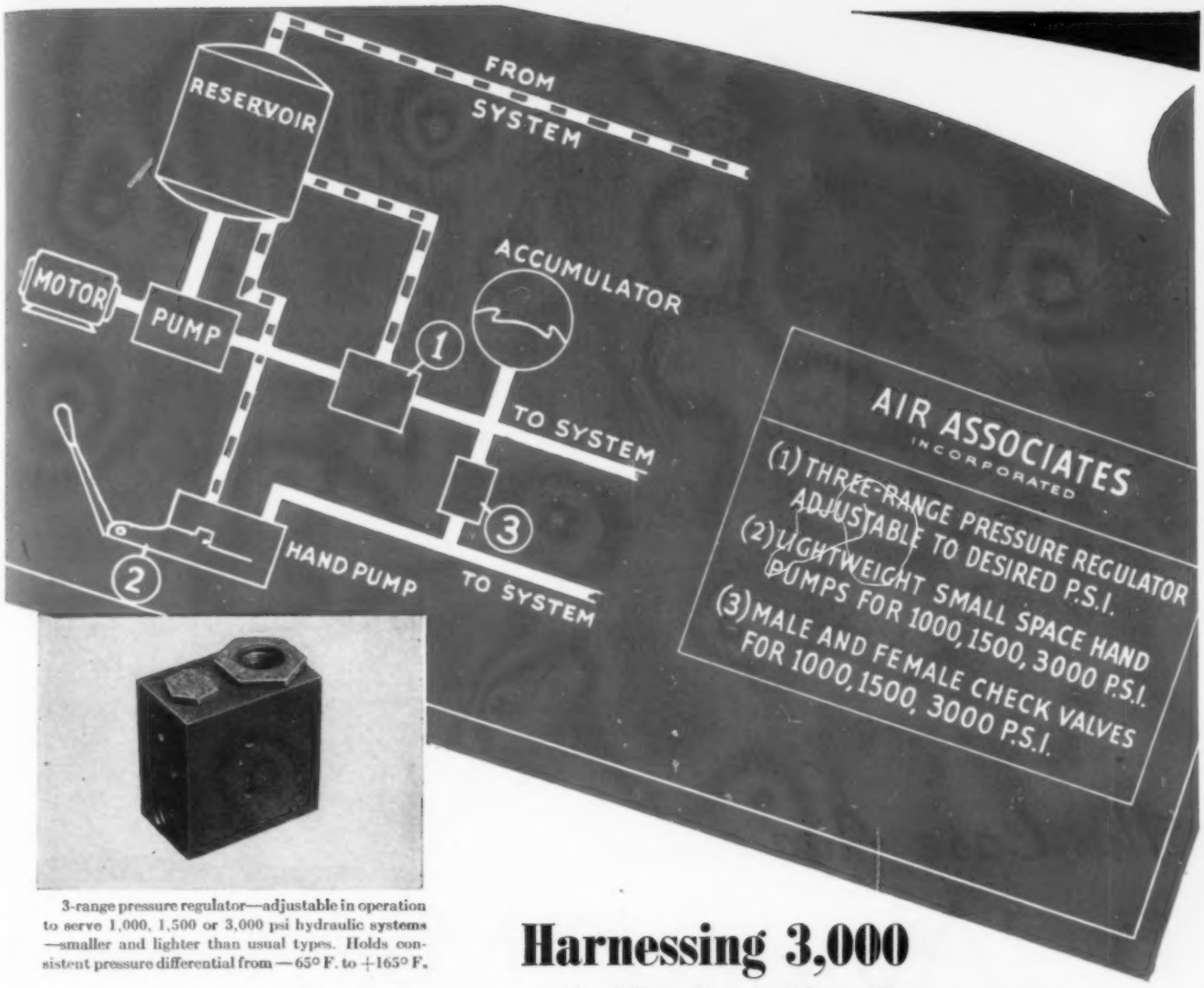


Utmost holding power is achieved with this "nailing groove," a patented feature found in the Stran-Steel T-hangar. The nail is curved and clinched as it is driven between the steel jaws of Stran-Steel members.

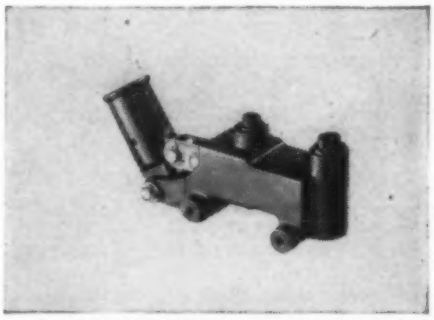
In addition to the T-hangar, Stran-Steel is offering Navy-type Quonset buildings in various sizes for commercial airport facilities, such as administration and communications offices, waiting rooms, warehousing and fire-equipment stations.

Prices, quoted below, include erection drawings, photographs of suggested erection procedure, bills of material, complete building frame, roof and wall covering, sliding doors and hardware, all bolts, nuts, screws, nails, washers, necessary to erect the building complete. The prices are subject to change without notice.

No. Hangars	Without Doors	Complete Hangar
1	$ 782	$ 1,050
2	1,378	1,895
3	1,974	2,728
4	2,570	3,561
5	3,166	4,394
6	3,762	5,227
7	4,358	6,060
8	4,954	6,893
9	5,550	7,726
10	6,146	8,559
11	6,742	9,392
12	7,338	10,225
13	7,934	11,058
14	8,530	11,891
15	9,126	12,724
16	9,722	13,557
17	10,318	14,390
18	10,914	15,223
19	11,510	16,056
20	12,106	16,889
25	15,086	21,054



3-range pressure regulator—adjustable in operation to serve 1,000, 1,500 or 3,000 psi hydraulic systems —smaller and lighter than usual types. Holds consistent pressure differential from —65° F. to +165° F.



New 3,000 psi hand pump meets latest A-N specifications—is lighter in weight, requires less space than conventional hand pumps. Weighs only 1.25 lbs.

New check valves for 1,000, 1,500 and 3,000 psi hydraulic systems employ either plastic button poppets mounted on metal guides or steel ball poppets.

Harnessing 3,000 psi Hydraulic Pressure

The extra advantages of 3,000 psi hydraulic pressure can now be utilized completely with three new items of Air Associates design and manufacture . . . a small, light, adjustable 3-range pressure regulator . . . check valves, plastic-on-metal poppet type or steel ball type . . . and a low-weight, high-capacity hand pump . . . All meet latest Army-Navy Specifications.

The compactness and light weight of these units recommend them to aircraft manufacturers. But their dependable and accurate functioning in heavy service and temperatures ranging from —65° F to +165° F . . . suggest significant new potentials for hydraulics applications in all industries!

Air Associates is also prepared to make actuating cylinders suited to your individual 3,000 psi hydraulics requirements. Detailed specifications on all AA hydraulics equipment on request . . . Inquiries are invited.

• AIR ASSOCIATES
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TETERBORO, N. J. *Branches:* ATLANTA, CHICAGO, DALLAS, LOS ANGELES
ENGINEERS AND MANUFACTURERS OF AIRCRAFT SPECIALTIES . . .
SUPPLIERS OF ALL TYPES OF MATERIALS TO THE INDUSTRY SINCE 1927

"To anyone familiar with the airport management field or even very familiar with the operational aspects of aviation, this manual business, this secrecy, these guards against 'unauthorized inspection' are perfectly silly."

The Case Against 'Absentee' Management

Beware of airport service rackets offering to solve your problems by correspondence and "secret manuals."

By JOHN H. FREDERICK

THERE just aren't enough qualified airport managers. Many towns, some small and others of fair size, are finding themselves with an airport but no manager. This is particularly true as the various fields constructed on county or city land, in various parts of the country, are turned over by the armed services to the civil units which bought the land in the first place. The result is that hundreds of places are looking for help on their airport management problems. There are hundreds of municipalities, large and small, thinking about airport construction and what the Federal airport aid plans may mean for them.

The result of this situation is that in various parts of the country eager individuals, some with a certain amount of aviation experience, but hardly any of them with any airport management or design experience, are rushing forward and offering their services on a retainer or fee basis. The result is absentee airport management. This is so because, obviously, these individuals or their "staffs" cannot be in all places at all times.

As a matter of fact, the greater part of what these people are offering the sorely beset municipal or county authorities is nothing more than could be obtained for nothing from the various field offices of the Civil Aeronautics Authority or by reading the leading trade papers in the field of aviation and airport management. However, the people with an airport on their hands, or wanting an airport, don't always know about the trade papers and the CAA services. The services of the CAA aren't too well advertised. Neither are those of the trade journals.

Then too, the CAA airport management and planning field staffs are among the most overworked groups in government service. They just can't get around to all the communities that ask their help as quickly as these places want them. (Incidentally, too many of these men are still driving automobiles when they should be flying wherever possible.) The result is that there is a very fertile field for organizations designating themselves as "Aviation Service," "Airport Service" or by some similar name.

Properly organized and operated, a service group, such as those the writer has heard about and had a chance to look into, can render a real service. One danger is that they usually offer to do too much in order to get a city to sign on the dotted line. Another fault is that they frequently charge much too high fees for the service they really can perform. But the greatest danger is that a community under contract to one of these "services," for a year or more, will be lulled into thinking that they have airport management when they have nothing of the sort.

It usually works about this way. The "service" organization agrees to advise a community on many things concerned with maintenance, operation and improvement of an airport

all the way from national and state aviation legislation trends to actual operations planning. One organization agrees to advise on at least twenty different subjects and then notes in their prospectus that "the above activities are listed by way of illustration only and should not be interpreted to exclude other similar activities which may develop in the future." Another organization offers to supervise everything from making preliminary surveys to "commissioning" an airport, whatever the latter may be.

Debunking the "Secret Formula"

And then there is the airport operations manual that most of these "service" organizations seem to set great store by. For a retainer ranging anywhere from $300 to $1,200 per year, they agree to do almost everything anyone can think of in the way of keeping a city advised and up-to-date on all its airport problems. They will also provide a "manual." This is generally a secret, a big secret and the usual contract provides that the city can't keep this publication. The "manual" remains the property of the "service organization," and must be returned when, as, and if the agreement is canceled. And the city agrees not to let anyone copy this manual, either. Also, no one but the proper city officials, agents and employes must even look at it or use it.

To anyone familiar with the airport management field or even very familiar with the operational aspects of aviation, this manual business, this secrecy, these guards against "unauthorized inspection" are perfectly silly. If there is any industry where there is no secrecy it is in airport management. It is very hard to hide anything about an airport. Of course some airport managers are known to practice "smart" tricks of one sort or another but even they haven't stayed secret very long. There are very few legitimate management "tricks" in this trade that aren't generally known. Airport managers, for the sake of their own survival, have had to exchange information. Most of them want to let the next fellow into anything that may be discovered to improve the situation on any airport. Airports are important one to another. It is important for airport "A" that airport "B" and every other airport in an area or in a state or in the country be a success. Airport management has been more free and open even than airline management and here too there has been a wide and healthy exchange of information to help build up the industry as such. The manufacturers may have their secrets and their "tricks of the trade" but there is very little that is secret in the operational side of aviation. There just can't be. A secret "manual" is a black mark against any organization offering such a thing as a part of any service agreement. It just goes to show they don't really understand the profession of airport management.

The charges made by the "service" organizations are not low, although when only the original retainer is considered they may appear to be in view of all they offer to do. There is usually a provision for additional fees and payment of or sharing in traveling and other expenses. These additional fees for correspondence or consultation range all the way from $25 to $75 per day and no one knows what expenses may come to.

In order to give some appearance of actual management most "service" organizations agree to have one of their representatives on hand at every airport on their list of clients for a varying period of time each month. One day is the usual length of time. During that day this representative is available for conferences, inspections, negotiation and for making recommendations to city officials or city employes. (Usually this day's work each month is included in the "retainer" but with expenses split or paid wholly by the city.)

One day, two days, or a week a month is not airport management in the professional sense. It will usually not be found adequate if any business at all is done at an airport and if there is no business there is no use even for an advisory "service." It will be found to be quite expensive management, too, when the retainers and all the subsidiary fees are taken into account.

It is not the writer's intention to condemn all of the so-called "services" which seem to be springing up. As far as they go and when they are bought for just what they are and can do, they are useful, if one can afford them, but they are not and cannot be anything more than absentee airport management at best. ★ ★ ★

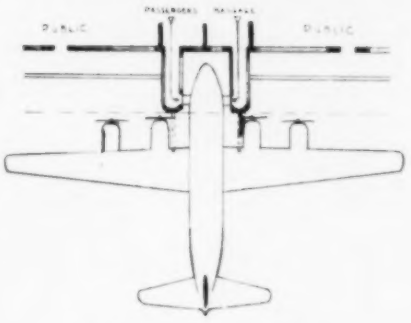
Airline-built Terminals, Distinctive In Design, Urged by United Expert

Air terminal design demands creation of a distinctive style of architecture, Albert F. Heino of United Air Lines told the Society of Automotive Engineers national air transport engineering meeting in Chicago, December 3. "It is within the power of the present technical profession to create a distinctive American architecture representative of air transportation," Heino said. "Such development does not preclude the expression of local color in the terminal design, which can identify a particular city to the traveler," Heino added. Stressing the need for efficient design, Heino recommended, among other essentials of modern airports, separation of passenger and cargo facilities, incorporation of provisions for expansion, and design for time-saving in all operations.

Airlines Should Build

Airlines should lease space and construct their own terminals, Heino recommended, and should construct whatever facilities they desire, provided such facilities fit into the general architectural plan. It is necessary, in the design of the buildings, to obtain the greatest efficiency. The air terminal may be considered as a machine, which, when working smoothly, will affect the transfer of passengers and cargo from surface to air transportation in a minimum time.

Docks for airlines, with provisions for loading passengers and cargoes at different levels are features recommended by Heino. As illustrated in the diagram, airliners would be nosed or tailed into fixed docks equipped for overhead fueling and complete servicing facilities. By means of a short adjustable gangplank, passengers



Sheltered Loading Dock

would be loaded under shelter, directly from the terminal into the airplane at the upper level of the dock. The field level would be used exclusively for cargo handling and airplane servicing. As air freight develops to sizable proportions, Heino believes there will be a need for separate buildings with docks for air freighters and with both truck and rail facilities.

Community Center

"The public center of the airport," said Heino, "should contain all the conveniences required by the general public and should be developed to the economic limit of a particular locality. The airport development in the future will be a complete social unit. Its business center will be the public center of the airport." Residential districts will skirt the airport, Heino continued, and the public center will be used to an increasing extent by persons not directly concerned with patronage of the airlines. This public center will have such conveniences as hotels, moving picture theatres, recreational areas, public garages, dining facilities, shops, and office space. ★ ★ ★

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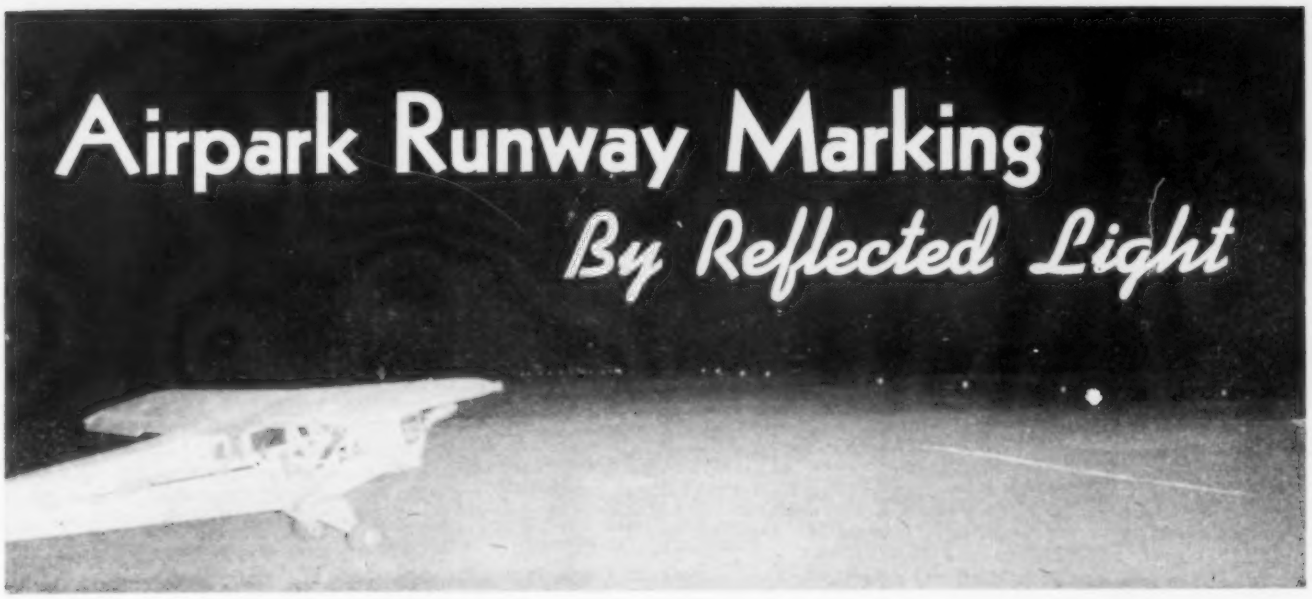
Airpark Runway Marking
By Reflected Light



A new system of illuminating reflectors to outline landing strips on small airports.

A "REFLECTED-LIGHT" system, utilizing "Schotchlite" reflectors and a floodlight trailer, has been found practical for small airport use. The unique system, developed by D. W. Onan & Sons of Minneapolis, Minn., received CAA approval after initial experiments at Rochester, Minn., Municipal airport.

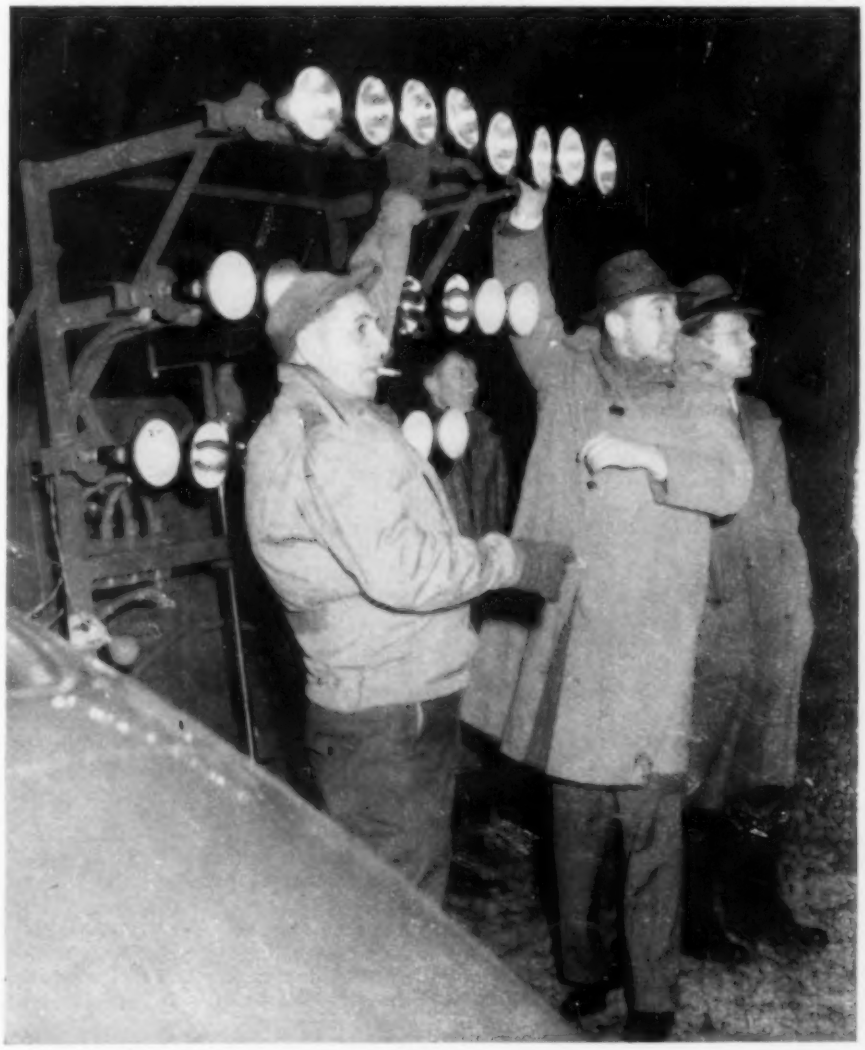
To simulate typical small airport conditions, a portion of the test was conducted with a 100- to 2,000-foot turf runway. "Schotchlite" vertical reflector markers, 12 to 14 inches high, were placed at 100-foot intervals along the turf. A trailer-mounted standard Onan W4A electric plant, placed at the approach end of the turf strip, supplied lighting for the reflective markers. This floodlight unit, rated at 5,000 watts, generated standard 115-volt, 60-cycle, single-phase alternating current.

A four-place Stinson and a Piper Cub, both equipped with landing lights, were used in the various tests. The landing lights, it was learned, are not sufficient for locating the ground reflectors.

The CAA, following the experiments, was reported as having drawn the following conclusions:

1. "Schotchlite" reflective markers can be successfully used for landings and take-offs at fields with no boundary lights if suitable floodlights are located at the approach end of the runway or landing strip to obtain the necessary reflective illumination from the markers along the landing strip.

2. Minimum illumination for the markers outlining a landings strip should be two 1,000-watt floodlights. The floodlights should be located 300 feet from the end of the runway and they must be centered on the runway centerline extended to give maximum effective illumination and reflection from the markers. ★ ★ ★



Lighting for reflector markers is supplied by a trailer-mounted battery of floodlights shown at the left. Placed at the approach end of the turf landing strip, this unit supplies lighting as illustrated at the top of the page. Vertical reflectors, clearly marking the landing strip, are 12 to 14 inches high and are placed at 100-foot intervals.

ARIZONA AVIATION CONFERENCE NOTABLES gathered at Tucson last month included, from left to right: Monte Mansfield, Tucson Chamber of Commerce president; Congressman Richard F. Harless; Forrest E. Watson, president, Oklahoma Flying Farmers; W. T. Piper, the manufacturer; Joe K. Hicks, CAA airport engineer, Santa Monica; and C. Edgar Gayette, secretary, Tucson Chamber of Commerce. Rep. Harless, Watson and Piper were speakers.

Borsari Explains Surplus Airport Disposal; Advice of CAA to Be Heeded

Explaining new regulations for surplus airport disposal, George Borsari of the Surplus Property Administration told a meeting of airport managers and others during the National Aviation Clinic in Oklahoma City that the SPA will follow the Civil Aeronautics Administration's recommendations on many points relating to airport disposal.

First chance to acquire surplus airports goes to state and local governments after the Federal government indicates it has no further use for the facilities, he said. Notice of intent to acquire a surplus airport must be filed within thirty days after the property is made available, but SPA can extend the time. Borsari commented that SPA feels airports should be returned to local communities as soon as possible, and permits, with or without cash payments, will be issued to allow local governments to use surplus airports pending final disposition by sale or lease.

A Surplus Airport Disposal Committee consisting of CAA, SPA, War Department, Navy and the disposal agency representatives will serve in an advisory capacity to review disposition of the properties. Local governments acquiring surplus airport facilities must meet conditions providing that the property shall be used for public airport purposes on reasonable terms and without unjust discrimination, shall be maintained in good condition, and the airport's approaches must be protected from obstructions.

Borsari promised full co-operation to local governments, and told of several instances where he and other SPA officials had personally attended to details in assisting communities to obtain surplus properties. "If you run into trouble, pick up the telephone and call me in Washington," he told several inquirers. Availability of hangars from surplus airports was questioned, and Borsari said the policy is to keep the airport as complete as possible until all hopes of using it as a complete airport are gone. Sale of hangars and other facilities from the property then will be considered.

The conference was conducted by Pat Moore, executive secretary of the American Association of Airport Executives.

NASAO Asks State Channels Be Used for Federal Airport Funds

The need for channeling Federal airport funds through existing state aviation agencies was stressed at the recent meeting of the National Association of State Aviation Officials in St. Louis. A resolution was adopted urging House and Senate members to reach a compromise on conflicting provisions of Senate Bill S-2 and House Bill HR-3615. New officers elected are William L. Anderson, executive director of the Pennsylvania Aeronautic Commission, president; Clarence F. Cornish, director of aeronautics, Indiana, first vice president; David Giltinan, secretary of the West Virginia aeronautical commission, second vice president; Leo G. DeVaney, director of the Oregon state board of aeronautics, third vice president; Edward F. Knapp, director of the Vermont aeronautics commission, secretary, and George B. Logan of St. Louis, legal counsel.

The directorate of the Association elected is: Region 1 — Arthur Tully, Jr., director of the Massachusetts aeronautical commission; Region 2—Asa Rountree, aeronautical director of Alabama; Region 3—L. L. Schroeder, commissioner of aeronautics for Minnesota; Region 4—Robert R. Adams, chief of the aeronautical division of the Louisiana Department of Public Works; Region 5—I. V. Packard, director of aeronautics, Nebraska; Region 6—Joseph Bergin, director of aeronautics, Utah, and Region 7—W. G. Furguson, secretary of the Montana aeronautical commission.

State officials reiterated their demand for authority to act against reckless flying. Use of state registration certificates was recommended as a means of enforcing state authority.

The CAA has opposed state certificates on the grounds that it would constitute an infringement upon the Federal certificate and thus act as a bar on interstate traffic, but officials of the CAA and the NASAO agreed to redraft the model State Aeronautics Commission Act proposed by NASAO. Representatives of the CAA will confer with a special NASAO legislative committee when the redraft is completed in another attempt to settle the disagreement.

The CAA has "muffed the ball" in failing to obtain funds to operate control towers, the NASAO charged at its opening session. A resolution was adopted calling upon the CAA to pursue an aggressive policy in obtaining funds.

The NASAO backed the proposal before Congress for a single department of defense, with co-equal air, ground and naval forces. Experience of the second World War demonstrated "conclusively that integration of the armed services is indispensable in combat," the NASAO declared.

The organization also announced it favors the McCarran Bill for channelling Federal aid through state agencies in preference to the Lea Bill. The Lea Bill, the NASAO contended, would result in duplication of planning. Other resolutions favored a provision in the McCarran Bill providing that political subdivisions might assess government agencies using building space, promised the CAA full co-operation in formulating and operating a uniform air marking program, urged the earliest possible disposal of surplus military airports and their operating equipment, and the advocated use of interim permits.

Conflict on Channeling of Funds Continues to Delay Airport Legislation

Differences of opinion over methods to be used in channeling funds to local governments continued to delay agreement by House and Senate conferees last month, and final committee action on a compromised Federal-aid airport program was not expected soon. Other differences between Senate-approved S-2 and House-approved HR-3615 which must be ironed out include payment for land and condemnation powers, but the two committees are expected to agree on $700,000,000 as the over-all amount of funds, to be expended over a period of seven years. The conference on the two bills has been frequently recessed.

MUNICIPAL PLANNING

(Continued from page 53)

erage salary being paid today does not seem equitable either to the manager or to the community. Probably the absolute minimum acceptable in most communities would be $3,600 yearly.

The outline which should be followed in co-ordinating the city government and the airport management would be as follows:

(1) Establish the aviation commission; charge it with the responsibility for the construction and operation of the airport in co-operation with the airport manager.

(2) Specify the authority of the airport manager and grant him such authority as is necessary to fulfill his duties.

(3) Grant responsibility to the manager for all phases of the airport's operation and supervision.

(4) Assure co-operation between the aviation commission and the airport manager on all budget, financial, and policy matters, including negotiation of leases and contracts.

(5) Assure supervision of the airport by the airport manager without conflict with other city departments or personnel.

(6) Insure the position and the salary of the airport manager through municipal civil service.

A community following such an outline and procedure will assure itself of an airport administration, supervision, and operation which has the best possibility of becoming a service to the community and a financially sound and profitable operation.

★ ★ ★

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New Type Prefabricated T Hangar Announced

A prefabricated T hangar is being manufactured by Washburn Manufacturing Company, Trenton, New Jersey, offering inexpensive, ready-made hangars for private fliers. One model has adequate room for office and tools next to the hangar space housing the tail of the plane. Two different sizes of hangars are available. The smaller type is designed for lightplanes of the Cub type, and has a door clearance of 38 feet by 7 feet 9 inches high. The hangar itself is 24 feet deep. The larger hangar has a clearance of 38 feet, height of 9 feet 9 inches, and a depth of 32 feet. Outside width of both hangars is 40 feet. The doors are built in three sections, and are the overhead type, operating on rollers.

Stripping of Surplus Airports Prohibited

Airports that are declared surplus must be left intact, according to the Army and Navy Departments, which are acting with the Surplus Property Administration. Commanding officers have been instructed to see that neither installations nor buildings are stripped of equipment. Nearly 700 airports, worth more than two billion dollars, are to be declared surplus by the Army, Navy, Reconstruction Finance Corporation and the Civil Aeronautics Administration.

New Orleans to Open New International Airport

Moisant International Airport, the City of New Orleans' new airline terminal and international port for the Mississippi Valley, will be dedicated January 12-13. Visiting notables from throughout the United States, Central and South American countries are expected to attend.

Six commercial airlines will use the terminal, which is located ten miles west of New Orleans on the Airline Highway to Baton Rouge. Primarily designed as an airline terminal, Moisant International has three 5,000-foot and one 7,000-foot concrete runways and is equipped with a VHF instrument landing system. D. O. Langstaff, with offices in the terminal building, will manage the new airport in addition to his duties as executive director of the City of New Orleans Aviation Board.

San Francisco Approves $20,000,000 Airport Plan

San Francisco has voted a twenty-million dollar airport expansion program. R. W. F. Schmidt, superintendent of airports for CAA in the Santa Monica regional office, congratulated B. M. Doolin on the move, saying that the impact was far reaching, and the action has given strength to many.

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A "beefed up" truss in this commercial version of the Model 18 Beechcraft is said to increase gross weight and provide a much larger pay load than the wartime version. A new landing gear with redesigned shock strut and "V" brace has been installed. Engine nacelles extend nearer the trailing edge of the wing, cabin windows have been changed and the emergency exit on the right side of the fuselage is larger.

Aircraft Sales and Service

Eliminate the Distributor?

ALTHOUGH there is a trend among some light-plane manufacturers to eliminate the distributor and operate directly with dealers, factory-distributor-dealer system still possesses merits warranting full consideration.

Eliminating the "middle-man" can be a disadvantage, especially in the case of a small distribution. In the past the distributor has carried much of the burden in aircraft marketing, relieving the manufacturer as well as the dealer of many responsibilities including financing. When the distributor is eliminated, the factory and its dealers have to assume the maintenance of parts inventory, adequate repair facilities, finance credits, sales supervision in the field, customer relations and other important matters.

Direct factory-dealer operations have been pointed to as affording the manufacturer closer ties with his dealers. But the manufacturer must use regional factory representatives for liaison work—he eliminates the distributor but adds a staff of supervisors to his own payroll. On the other hand, some manufacturers claim better territory relations through the long-used distributor set-up, explaining that the distributor knows his territory more intimately. Generally speaking, the distributor has established himself before taking on a line, and therefore makes available to the manufacturer a wealth of information regarding his territory and its prospects for dealers and sales. In many cases he has already established some measure of operating facilities, including repair and maintenance equipment.

When it becomes a larger and more active business, perhaps aircraft sales can be standardized and operated along the lines of a blueprint. But until then there will still be much of merit to be considered in both the distributor and the direct factory-dealer form of distribution.

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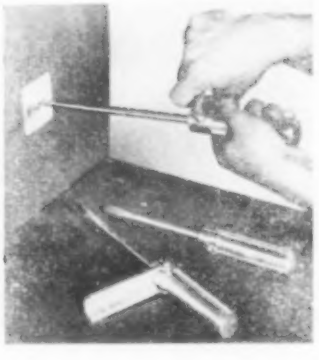
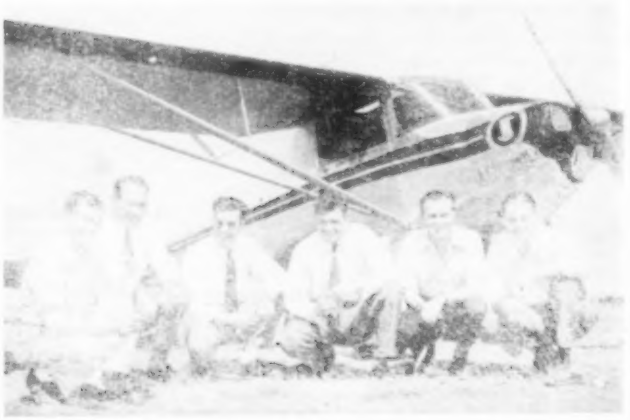


"Tuffy," — new triple-purpose screw driver with a "power arm" arrangement for extra power, unlocks rusted screws ordinary screw drivers cannot budge. In reverse, "Tuffy" provides extra power to tighten screws and make them stay put. With the power-arm folded back into the handle, "Tuffy" becomes a standard type screw driver. Additional information on "Tuffy" may be obtained from the Swallow Airplane Co., Inc., Wichita, Kansas.



This informal picture of the sales force for Luscombe Aircraft Corporation was taken during a recent meeting at the Dallas plant: Left to right, Merrill Steincamp, William Bisbing, C. J. Melanis, Paul Shultz, John Sullivan, and D. W. Hayward. Jack Filla, other member of the sales force, is not shown.

A new company to design, manufacture, and merchandise airplane ground handling equipment and service tools has been formed as an independent division of Lockheed Aircraft Corporation. Known as the Airquipment Company, the division will be headed by C. P. (Jack) Turner, general manager, and Newman L. Smith, controller and assistant general manager. Offices will be at Burbank, California.

Spare parts for Fairchild M62 aircraft (PT-19, 23, 26) are now available at Fairchild Aircraft dealers and distributors. The Reconstruction Finance Corporation recently authorized Fairchild to act as its agents in the sale and distribution of Government-owned surplus spare parts. An illustrated parts catalogue is available at dealers or may be ordered from the Service Division of Fairchild Aircraft, Hagerstown, Md. Some of the surplus items offered: M62 center section, $325 each; outer wing panel (never used), $250 each; fuselage bottom fairing, $15.00 each; main landing gear spring, $2.90 each. A 90-day factory warranty covers all sales of surplus spare parts.

Sales and service problems of the dealer, distributor, and the manufacturer were to be discussed at the third annual meeting of the Aviation Distributors and Manufacturers Association in Cleveland December 10, 11, and 12. The program, featuring discussions led by well-qualified leaders in the aviation sales field, follows: "Private Flying," W. T. Piper, president Piper Aircraft Corporation; "The Rapid Influence of Electronic Research on the Aviation Industry —Its Trends, Designs and Utility," James M. Riddle, Radio Corporation of America; "Selective versus Unlimited Distribution," Heyliger Church, the Weatherhead Company; "Can Distributors Afford to Stock Lines Which Do Not Provide Adequate Profit?" G. B. Van Dusen, Van Dusen Aircraft Supplies, Inc.; "The Method by Which We Determine Whether a Customer Is a Dealer," R. B. Kenty, Air Associates; "What Margins of Profit Are Necessary for the Distributor?—For the Dealer?" C. L. Corwin, Champion Spark Plug Company; "Is There a Place in Our Industry for Sub-Distributors?" W. F. Scott, Jr., Supply Division, Inc.; "How Can Distributors Improve Their Services to the Advantage of the Manufacturers They Represent?" Dwight P. Joyce, the Glidden Company; "How the Manufacturer and Their Representatives Can Be of Greater Assistance to Their Distributors," R. V. Trader, Bob Trader-Aero Supply; "The Importance of Manufacturers Having Definite Sales Policies," Ray Snyder, Snyder Air-

raft Corporation; "Our Experience in Selling Original Equipment and Replacements Parts," T. G. Tynan, the Electric Storage Battery Co.

Old or broken hack saw blades will give added use when inserted in the Super Blade Holder, a single-unit device that holds almost any length blade securely. The tool is merely a tubular handle with an extended grip nose. Blades are inserted through slots in the handle and the grip nose

secures the working point. Distributor is A. D. McBurney, 939 West Sixth St., Los Angeles 14, California.

A safe, hand-operated, lightweight starter, "the McDowell Safety Starter, is powered by a hand-operated lever and needs no electrical equipment. Adaptable to any light-plane engine, the starter is simple to install and is designed to fit under a streamlined cover. The installation, complete with impulse magneto and lever, weighs 12 pounds and is listed at $82.50. Additional information may be obtained from McDowell Manufacturing Company, Pittsburgh 9, Pa.

H. C. "Ding" Rankin is back with the Beech Aircraft Corporation. The former chief test pilot returned from Army service to become sales manager for Beech. During his time in the service, Rankin was promoted to the rank of Lieutenant Colonel and assigned as special aide to Brig. Gen. Ray G. Harris, commanding officer of the Mid-western Procurement District.

In prewar days, Rankin personally demonstrated and sold a good percentage of Beech's total production. When the Corporation was striving to become established years ago, there came a day when there was no money in the bank to meet the payroll. Walter Beech called Ding into his office at nine o'clock in the morning and told him to hustle out and sell two biplanes and be back with the money before half-past twelve. Ding did it with ten minutes to spare.

Flying an 18S Beechcraft, Rankin won the 1940 Macfadden On-to-Miami Race with a non-stop flight averaging 234 mph., fastest time ever made in competition by a commercially licensed plane. "On to Miami" wasn't enough . . . Ding went on to Havana (233 miles) in 59 minutes 25 seconds to win the Miami-Havana Free-For-All Trophy.

Dallas Aircraft Sales, Inc., has acquired a hangar on Love Field for sales of new Beechcraft executive transports. Jim Gray, vice president and sales manager, says first deliveries are scheduled for mid-December. Factory production is expected to reach three planes daily soon. The new commercial Beechcrafts will be available in two models, the Model 18S grossing 8,750 pounds and the Model 18C grossing 9,400 pounds.

A newly-revised Service Sales Manual will be distributed by the Continental Motor Corporation's aircraft engine division. The manual embodies suggestions obtained from interviews with scores of distributors, dealers, wholesalers retailers, and factory representatives. It will contain a field service plan, an explanation of requirements, procedures and policies and information on prices and material on the division's school for aircraft mechanics.

Two-way radio sets, manufactured by Airadio, Inc., have been turned over to Air Associates, Inc., for exclusive distribution. The radios are especially designed for light-plane installation, feature a postcard-size front panel, and provide for plane to tower communication, inter-plane communication, radio range flying, interphone, and standard broadcast reception.

Pacific Airmotive Corporation has been appointed exclusive jobber for the distribution of Sherwin Williams aviation finishes in all of the United States west of the Mississippi River, including Alaska.

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- **Model AB39, Power 20 watts, 20 lbs., 2 Frequencies $437.50**
- **Model AB39-814, Power 50 watts, 32 lbs., 2 Frequencies $687.50**
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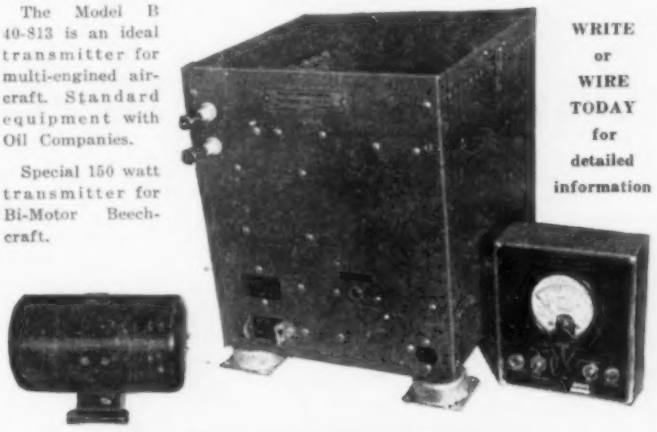
Also a complete line of two-way radio combinations for light airplanes. Expertly engineered and built to the most efficient performance standards.

The Model B 40-813 is an ideal transmitter for multi-engined aircraft. Standard equipment with Oil Companies.

Special 150 watt transmitter for Bi-Motor Beechcraft.



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A new carbon remover and parts cleaner is claimed by the manufacturer, Kelite Products, Inc., to be excellent for cleaning pistons, carburetors, fuel pumps, and small parts. The cleaner is odorless, is safe on all metals, and will not burn or explode, adds the manufacturer. However, as in all materials of this type, neo-prene gloves should be worn by operators. The Kelite people have prepared a booklet, "Aircraft Servicing," of interest to operators of private aircraft and bases and people engaged in commercial airliner maintenance. Aircraft cleaning problems discussed, from metal and fabric surfaces, engine overhaul, through disinfecting and commissary cleaning. Copies may be obtained from Kelite Products, Inc., 909 E. 60th St., Los Angeles 1, California.

Major J. Keith Davis has been appointed sales manager of the Airplane Sales Division of Robinson Aviation, Inc., Teterboro Air Terminal, Teterboro, N. J. Major Davis piloted 110 missions over the "Hump" from India to China and also served as commanding officer of an air base in India. Former president of the Harvard University Flying Club, he was a director of National Intercollegiate Flying Clubs in 1937-38. ★ ★ ★

Beech Controllable-Pitch Propellers

A CONTROLLABLE pitch propeller for lightplanes, equipped for either manual or electric control, is now manufactured by the Beech Aircraft Corporation. Sales will be through Beech dealers and distributors, but dealers handling other aircraft with Beech propellers as standard or optional equipment will be invited to handle the controllable pitch propeller.

The propeller installation comes in two sizes, the R-000 and the R-200 series. The R-000, now on the market, is adapted to the Continental A-65 and C-75 engines and any similar engine equipped with a number 0 taper at the end of the crankshaft. Flanged-end crankshafts are not adaptable. The R-200 series is scheduled for December delivery and is adaptable to engines from 150 to 225 hp. with crankshafts that have standard SAE 20-spline ends. When installed with manual controls, the R-000 weighs about 30 pounds. The R-200 weighs between 60 and 75 pounds.

Performance Improved

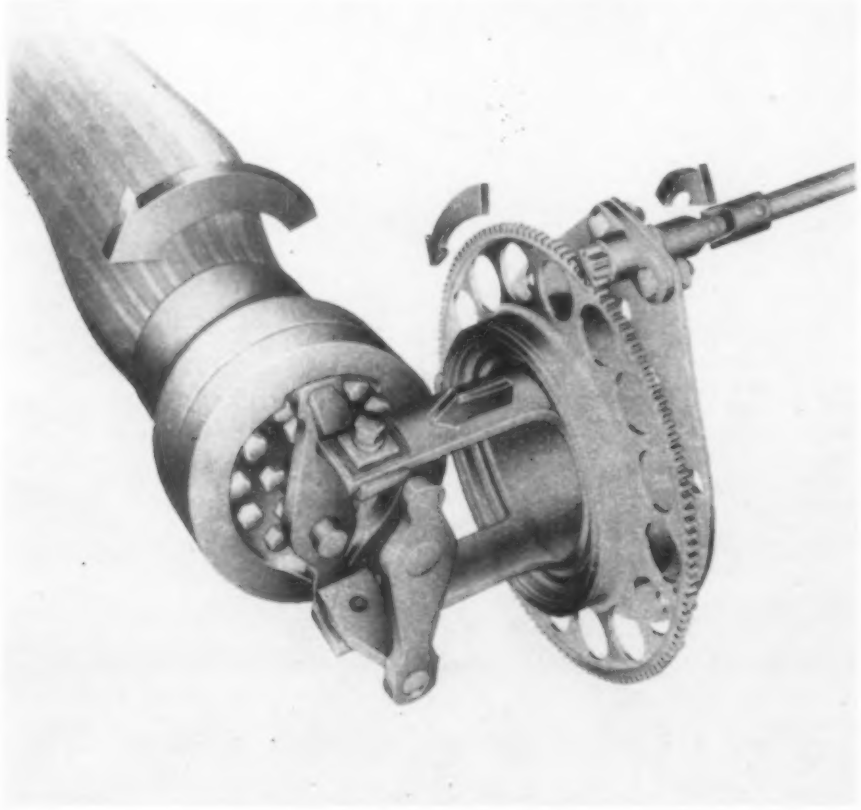
In tests the R-000 type has shown an increase in rate of climb and decrease in take-off run of 15 to 26 per cent in comparison to standard fixed pitch propellers. The larger R-200 series was tested on the Grumman Widgeon and reduced water take-off time to 52.25 per cent of that required with fixed pitch propellers. Ground run required was reduced by 30.5 per cent.

The variable pitch angle of the blades in the Beech propeller is under control of the pilot at all times. The pitch changing mechanism is either manually or electrically controlled. In the manually controlled models, a small hand crank on the instrument panel changes the pitch whether the engine is running or stopped.

Installation, says Beech Aircraft, is simple. On planes equipped with the proper type crankshafts, it is necessary merely to bolt the pitch changing mechanism on to the front of the engine at the time the propeller is fastened to the crankshaft. No lubrication of the pitch changing gear is necessary as it does not turn except while the pitch is being changed, and the setting is always the same for any given pitch position. The constant speed governor electrically actuates the electric pitch control mechanism. This permits installation at the usual governor drive position on any engine, with a simple wiring harness connecting the governor to the electric pitch control mechanism and to the actuating controls in the cockpit.

Converting a manually controlled Beech propeller to electric or constant speed control is possible by a simple modification.

★ ★ ★



Operation principle of the Beech pitch-changing mechanism is shown at the left. The installation may be equipped for either electrical or manual control. In the manually-controlled version, a small hand crank on the instrument panel changes the pitch whether the engine is running or stopped. The Beech R-002 Model propeller with 72-inch blades is shown below installed on a Piper L-4.

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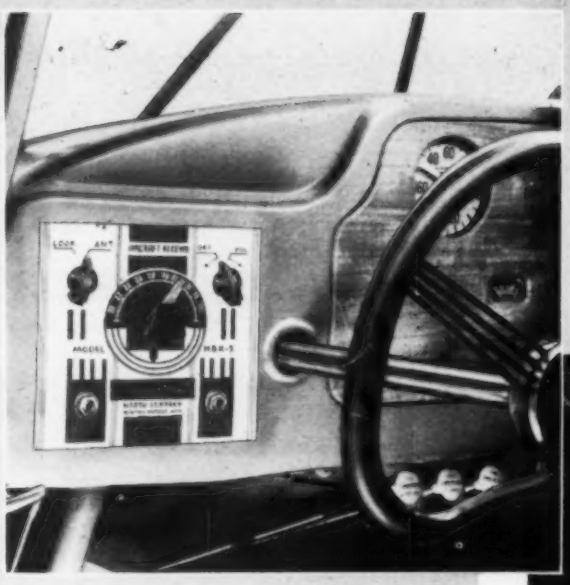

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Veterans Join Southern Flight

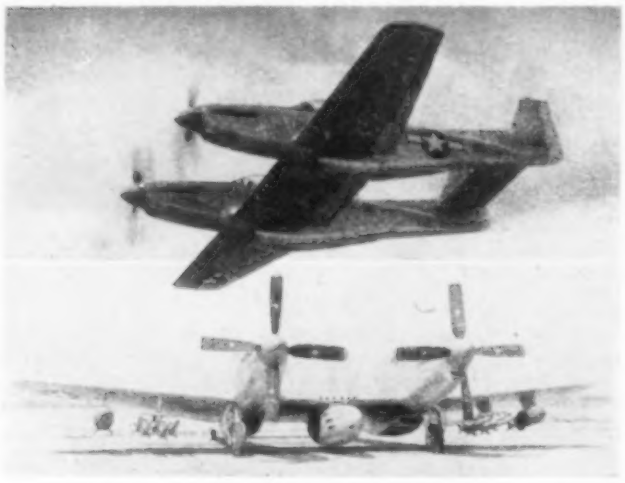
J. P. Holland, Jr. Joe James

Peacetime expansion of SOUTHERN FLIGHT has been initiated with the addition of two World War II veterans —both of them fliers—to the magazine's staff. J. PORTER HOLLAND, JR., of Dallas, a private flier before enlisting in the paratroopers in 1943 and serving overseas, has been appointed Director of Advertising. Educated in Dallas, Riverside Military Academy and the University of Texas, he was for nine years a member of the advertising staff of "Holland's, Magazine of the South," and was advertising manager of "Farm and Ranch" when he entered the Army. JOE JAMES of Dallas, who was a plane commander in the Naval Air Transport Service when released recently, has been appointed Associate Editor. He began military service in the Marine Corps but switched to the Navy after flight training, serving as a flight instructor for twenty months before being assigned to the Pacific Wing of NATS. A University of Texas graduate, he was editor of its humor magazine in 1939-40, and before the war he toured South America preparing and illustrating travel articles. His material has appeared regularly in SOUTHERN FLIGHT during the war.

REVVING UP

(Continued from page 4)

cal aid could be reached only after three weeks on the trail, and the terrain was too bad even for liaison planes. But Captain Frank W. Peterson of Houston and Lieut. Irvin C. Steiner of Chicago reached him in the YR-4. They landed on a razor-back peak that dropped off sheer on both sides for 2,500 feet. The patient, Pvt. Howard Ross of Tonawanda, N. Y., made it back to the hospital in fine shape, although he felt "a little nervous at the prospect of jumping off a cliff strapped to a queer looking windmill." Success of this, the AAF's first helicopter rescue mission, spurred General Arnold and other AAF leaders to chart widest possible utilization of the helicopter in rescue work.



DOUBLE MUSTANG FOR LONG RANGE COMBAT, the North American P-82, has two fuselages, two cockpits and four landing wheels. First design ordered into postwar production, P-82 has two Rolls-Royce V-1650 engines of 2,200 hp. each. Adjustable seats which can be tilted reduce pilot fatigue for range of over 3,000 miles in 475-mph. fighter, which can carry four heavy bombs in place of twenty-five rockets. Six .50-cal. guns are standard but eight-gun package units (center) can be added. (North American Aviation Photo.)

BUMBLEBEE

(Continued from page 39)

creased automatically — making the sport accessible to many income brackets—since time in the ship would amount to actual flight hours, thanks to the elimination of towing time.

Unusual structural design of the Bumblebee includes a Durante-nosed, molded plywood nacelle, topped with a large, plexiglass canopy bubble for excellent visibility; a fully retractable tricycle landing gear, operated manually by the pilot; and a conventional hollow dural, single boom tail which extends from the nacelle to support the tail surfaces.

The two rear wheels of the landing gear have special cam action so that they may be tucked away in the fuselage at the proper angle. They also have independent, internally expanding brakes which facilitate taxiing on the ground. The nose wheel is steerable with unique miniature shimmy dampeners and a lock.

A strut braced, high wing monoplane with dual controls, the glider has a 47-ft. wing span, and a wing area of 168 sq. ft. Its overall length is 23 ft.; height, 5 ft.; weight (empty), 465 pounds, with 350 pounds allowed for two passengers; engine weight, 44 pounds; horizontal tail surfaces, 16 sq. ft., vertical tail surfaces, 12 ft.

Starter, Controllable-Pitch Prop

The instrument panel contains a conventional throttle, choke, mixture controls, altimeter, airspeed and sensitive rate of climb indicators. There is also a magneto ignition with impulse starter so that the engine will not kick back at any time, and a ratchet wire starter mounted on the crank shaft enabling either pilot to start the engine.

The prototype was flown with a conventional wood propeller but is to be replaced with an adjustable pitch propeller on future models. Diameter of the propeller is 42 inches.

Provided on the front end is a conventional glider hook for towing if desired.

Because this is the first time anyone has introduced an auxiliary powered glider, the CAA has no regulations governing it and approval will be obtained from that body before mass production begins. However, the Bumblebee should start along the Nelson Aircraft assembly line within six months and roll off in kit form at a cost of well under $1,000 to the consumer. It is hard to estimate at this time just what the price range will be for semi-finished and finished models. Anyone wishing to buy the glider without the engine may do so, and it will be replaced with a weight to insure balance of the ship.

Nelson Aircraft was formed last July for the sole purpose of designing, building and producing the Bumblebee, and president of the firm is Ted Nelson. Ted is well known to glider enthusiasts as a veteran soaring pilot, but he is also well known as president of the Nelson Specialty Welding Equipment Co., San Leandro, Calif., manufacturers of stud welders which he, himself, invented.

★ ★ ★

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Fort Worth, Texas

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John Kennedy, President
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THE Sky's the Limit

BY BILL GREEN

A combat returnee reviews the plight of jobless fliers. . . . their flying was good enough to win the war, but industry doesn't need them. . . . . they want opportunity, not reward. . . . combination jobs will be the solution.

Jobs for Pilots

THE question that is uppermost in all our minds is the problem of employing all returning veterans and others needing jobs. We have a special problem in the employment of all the pilots we have trained during this war.

Lt. Bill Short, of Tulsa, recently of the Army Air Forces, wrote a dissertation in connection with this problem which we are herewith quoting:

"Well, most of us are down on the ground now, after several years of combat military flying. Gone, perhaps forever, are the days of highly specialized, costly training. Gone are the months we spent in classrooms learning from beginning to end the techniques and science of all that pertains to flying, which had been handed down from the best sources in the field of aviation for over thirty-five years. And now here we are, over two hundred thousand of us, back on the ground, looking skyward at the least provocation of the distant humming of engines.

"Down on the ground we are left with only fading memories of meteorology, navigation, electrical systems, hydraulics, power plants, superchargers, cruise and power control, radio, altimeters, weight and balance, command sets, liaison sets, radio compass and loop orientation and let down, anti and deicing equipment, automatic pilot, propellers, oil systems, fuel systems. Here we are with instrument take-offs and landings under our belts, glide paths and runway localizer practice, holding procedures, tracking, celestial navigation, orientation by automatic loop, true fade and the 90-degree method, plotting radio fixes, radio navigation, dead reckoning, and night and day pilotage. Here we are also, with hours of close formation of both varieties; the tree-top interception type, and high altitude, where it's done on oxygen; a working knowledge of radar, strafing, low-level bombing, and bombing through clouds from 25,000 to 30,000 feet; hours of instructing, with all types of landings in formation; acrobatics, instrument work, cross-countries and aerial and ground gunnery.

"Yes, we kids whom you taught to fly, came back home.

A Veteran's View

"Now comes the question: Why are we on the ground, wishing and dreaming? I believe this is the answer: When our security, our homes, and our way of living were threatened by the greatest armies the world has ever known; when the people of America called upon us to enlist and fight these enemies in every spot on the globe; when you trained us, and gave us the culmination of all your wisdom and experience; when we defeated in the air, on the land, and on the sea, the might and power of great dictatorships, we were only eighteen and nineteen and twenty years old. Today we return victorious, physically only a few years older than when we left, but mentally matured far beyond our years. You taught teen-aged kids to fly, and then sent us away to accomplish the biggest job ever men were called upon to do. And now, two or three years later, when we return you can think only of us as you did then. But you are wrong.

"As I write this, hundreds of young men are being told in all parts of the country: 'Sorry son, we can't use any young pilots. All of our boys are older, more experienced men.' We 'youngsters' are somewhat resented by the same men who gave us our wings. We, who have not yet won the confidence of our country's aviation industry, and the men who fly, are stunned by your attitude. In the fastest moving business of our time, you are conservatively hanging on to old ideas and old practices. But in our hearts there is no room for resentment or petty jealousies. There is only gratitude, for giving us those wings. And there is also a prayer in our hearts, that you will give us the opportunity to continue using them. If the aviation industry ever falls into a childish clique system, where one group of men are opposed to another group because of age differences, then its progress will be lost, and its enterprise gone.

"We are not suggesting that we should be given jobs as a reward or a compensation. And above all we do not want to take another man's job if he is efficient. But we do believe there should be a fair competitive system with skill as the dominating factor; not just time, or age differences. There should be room for all to prove their abilities. Americans, you spent millions of dollars giving us the finest education in the skies. Don't let it be wasted, don't let us forget the hum of those engines and the blue of that sky. All we ask is a chance and equal opportunity, devoid of prejudices."

Combination Jobs Best

This is just another example of the familiar fight of youth against age and experience.

Everything youth says is true, except that the natural evolution of man from the embryo to old age apparently is carefully worked out by nature in identically the same manner as the growth of plants and other animals. When man arrives at a certain age, his baby teeth fall out and his mature teeth come in. When he arrives at another certain age his voice changes. Still later on, he commences to forget all the interests of youth and takes on the interests of the adult man.

Our forefathers believed that no man was capable of being president of the United States until he had obtained the age of fifty; they believed that he shouldn't be a senator until he was at least forty-five; that he should not be a representative until he was at least thirty-five, and so on. This was because in thousands of cases, the greater percentage of men did not acquire mature thinking and judgment until about those ages.

We well remember how we resented our youth and other people's age for a good many years. Being somewhat ambitious we frequently found ourselves the youngest in the lot. We consequently were addressed as "junior" and cast in subordinate roles.

Now having employed several thousand men over a period of a good many years, we have found that although there are a few outstanding cases where young men do better than

anybody, mostly a man's value increases with his age and especially with the time that he has spent with any particular organization.

Thus, we do not believe we can hold out much hope for all these returning pilots, no matter how much or how well they may have been trained; that is to say, we hope that they will get the top-notch airline or private flying jobs.

On the other hand, we honestly and sincerely believe it would be very bad for these youngsters, most of whom have never before had a job in industry, to step into top jobs to begin with. That usually ruins any youngster.

Our human evolution has been and will continue to be dependent upon some incentive or some goal always just out of reach, but when, as and if we do reach it, we usually pull aside another curtain and see still another goal a little farther ahead. Whenever an individual fails to see a goal ahead, he stagnates and withers on the stem. We believe wholeheartedly that there are many goals to choose, and individuals should pick them out and keep them always in sight.

There are a great many jobs to be had which will be a combination of aviation and other industrial work. We believe there will be thousands of jobs available which must be trained for in the same way that these boys trained to be war pilots.

There will be many a sales job in which the salesman will travel by plane that he flies himself. First, however, he must learn about the things he is to sell and about the company that he is to sell for. This may mean several years of fairly discouraging work in that he will not be a full-time pilot. In fact, he may have to buy a little flying time at the airport in order to keep his license.

It is our feeling that within ten years almost every executive, at least all of the newer coming executives, most of the salesmen, most liaison or contact men, most traveling engineers and other personnel will fly their own planes about exactly as they do their own cars.

These youngsters should recognize that flying commercially is little more than a chauffeuring job, although of a somewhat higher technical skill and quality. The real business is in the executive and selling and engineering end, and flying should be used as a valuable adjunct to it in much the same way we use our ability to drive automobiles. Few of us want to be full-time chauffeurs. Most of us use our driving only to get ourselves back and forth to our other work.

It is obvious that we are probably not going to have over 500 to 1,000 commercial airliners and if we include the prospective feeder lines, perhaps 5,000 airplanes altogether in all kinds of private commercial aviation. Some 10,000 or 15,000 pilots make up our maximum requirement and others must seek jobs of other kinds.

This is not necessarily bad. It may provide the greatest opportunity for long time benefits that any young pilot can have. It is much better for the young pilot to start out low, build up his experience, judgment and knowledge of a particular business rather than to just start in flying an airplane and never do anything else. We can assure you that most business executives make more money than any ordinary airplane pilot and it will always be true. Of course, money isn't everything but a certain amount of it seems to be necessary for our modern way of living.

Thus we reiterate that we believe the greatest field for the returning war pilot—at least the younger one—is in industry where they may take jobs such as mechanical engineers, clerks, salesmen, junior executives, etc. For a while, a period of several years perhaps, this youngster may have to buy a few hours at the local airport to keep up his flying, but sooner or later, if he displays the required amount of intelligence, aggressiveness, and ambition, he will probably find himself flying at company expense, in a company airplane, and attending to the business that he has learned. ★ ★ ★

HIS DAY: There Wasn't Time But Plenty Happened

WHEN things go wrong around the Chicago & Southern Air Lines hangar at Detroit they can become genuinely SNAFU—as witness the following blow-by-blow report to the company meticulously submitted by a hapless service attendant. He probably would have remained silent, but a timekeeper asked the guy to explain what he had done that took so much time. Here's what he replied with:

"Ship scheduled for 8:30 a. m. Left hangar at 8:15, allowing 15 minutes for changing coveralls and walking up to the Ad building. Check with dispatcher who gives information that ship will be 1 hour late. Go back to hangar and change coveralls. Call from Ad building. Mistake in radio message, ship only ½ hour late. Change coveralls. Call from Ad building. Ship over Windsor (5 min. out). Change coveralls. Jump on tractor to save time. Battery dead. Jump out and run up to Ad building. Grab aileron blocks, rudder block, battery cart, nose covers and landing gear pins, and juggle them out to the ramp. Ship is C-47 instead of DC-3 so back to Ad building and change landing gear pins. All paraphernalia finally hung on ship. (No casualties.) Go to Ad building and get gas clearance. Undetermined, but gas to 520. Open steam petcock and drain water. Proceed to gas ship. Drop mitten in gas tank. Get piece of safety wire and fish it out. New gas clearance. Gas to 650. Close gas pit. Cover sticks. Get hammer and pound on it. Hinge breaks. Cover comes down. Inspect ship for any bum details. Struts low and tires down. No time to work on them. Dispatcher calls ship ready. Get two quarts of water to fill boiler. Valve froze open. Get teakettle of hot water to thaw out valve. Water runs down sleeve. Not enough water left so into Ad building for more. Remove nose boards and start engines. Go to pull landing gear pins but one is stuck. Pry it out with screw driver. Remove blocks and clear ship for take-off, put equipment away and go into Ad building. One mail pouch left behind and gas form screwed up. Call up hangar for tractor and drive out to end of runway to ship to get mail forms. Return to Ad building to get form fixed. Dash out to ship with corrected form and mail pouch. Ship takes off. Turn tractor around and stick front wheels in mud hole. Walk one mile to hangar to get shovel. Walk back and shovel out of mud hole. Drive to Ad building and dispatcher says there is a 20-minute delay. Two minutes mail mistake and 10 minutes gassing. Gather up all empty water, oil and hydraulic cans and proceed to hangar. Greeted at the door by Charlie Feuchter (timekeeper) at 9:10 who says, 'Where the hell have you been?'"

TWIN-ENGINE CESSNA

(Continued from page 37)

they can pay for rather than how much they would like to have. Most private fliers start with a 60 mph. airplane carrying two people and work up to a big Stinson, single-engine Beechcraft, or Waco cabin with speeds ranging from 120 to 160 mph. Very few individuals could afford to buy and operate a larger or faster airplane. Then Beech and Cessna brought the advantages of two engines within the range of the private owner.

Although the Cessna is slower than the Beech, it is also lower in cost. Its fuel consumption compares favorably with single-engine aircraft. Its speed will actually be 130 to 140 mph., indicated. Its criticized wood and fabric construction is not only economical to maintain but is within the capabilities and facilities of more repair stations than metal structure.

From the standpoint of the fixed-base operator, it should be a good "work horse." The Waco Standard model affords a good example of what I mean. It was not as smooth-looking or as fast as the "C" or "E" models, but it cost less to buy and operate. Its speed was only 120 miles an hour, but it would take four or five passengers in and out of Cub fields. By being able to take people into more places than the flashier ships, it brought the operator more dollars with a smaller investment.

Many of the operator's customers will be sold by the fact that it has two engines. This selling point will probably outweigh the operator's knowledge that he will have two engines to maintain instead of one, without actually achieving twice as much safety.

Flying the Cessna

My single-engine experience with the UC-78 has been limited to simulated conditions. In level flight, about all I noticed was a 10-mile drop in speed. The control pressures are not excessive. I realize that simulated conditions do not always give a true picture of a genuine emergency. It is almost sport to feather an engine on a B-24 with plenty of air under you and confidence that you can cut it back in when you want to, but it is anything but fun when one of those engines really quits for good. It would be safe to say, however, that in case of motor failure on take-off in the Cessna twin, the situation would be no worse than in a single-engine ship. If the failure occurred soon after take-off, there would be room to land within the field at most airports, and by the time it has traveled too far to get into the field it should have enough altitude to maneuver into a good landing even if altitude cannot be maintained.

When I was in Laramie, Wyoming, I was impressed by the fact that the CAA range inspector's Cessna—loaded with extra radios, full gas tanks, and all seats filled—took off and landed on that 7,200-foot high field in less space than other 4-5-place aircraft.

On your walk-around preflight inspection of the Cessna it is a good idea to look at the pitot tube to see that it is uncovered. Being under the belly of the plane, you cannot see it from the cockpit. When you get in, I think you will be impressed with the roominess of the cabin. The back seat was designed to carry three people in comfort, although only two were usually carried in the military version with an extra fuel tank and various items of special equipment.

Points to Remember

The instrument panel is quite simple, although single-engine pilots may not think so until they realize that the apparent multiplicity of dials is just the duplication of engine instruments. Starting and warm-up procedure are the same as for a single-engine plane with the same engines except that it must be run through twice. If you are not familiar with the constant speed propeller, you will be advised to check it by pulling the control into high pitch while it is turning about 1,500 rpm., just before checking the mags. The rpm. should drop about 300. You should also be cautioned not to advance the throttles roughly as the lag in operation of the propeller mechanism may cause it to over-speed.

As with any multi-engine aircraft, taxiing is done mostly with the engines. The rudder is somewhat effective, but there is no prop-wash to assist its effectiveness. By all means watch out not to use brakes with the throttle open on the same side. Although the brakes on this airplane are not delicate, such treatment will not do them any good.

You can push the throttles clear to the stops on take-off as the manifold pressure will not usually exceed 34 or 35 inches. If the rpm. does not hit 2,100, pull the throttles and taxi back to investigate. With the engines in good condition they will turn around 2,300. The Bobcat will fly off at about 80 mph. It can be climbed at 80 or 90, but I would not do it except in an emergency . . . when necessary to clear an obstacle. The wheels should be raised as soon as the plane is definitely airborne, and the speed allowed to reach 100 mph. before climbing. Like the DC-3, the wheels of the Bobcat protrude below the belly enough to afford considerable protection in a belly landing. This ship will climb well at 100 mph. and the extra speed will come in handy if one of the engines quits.

Good Stability

When you get enough altitude to try the stalls of the Bobcat, I think you will be pleased by its stability and clean break. It will give you a lot of confidence in 3-point landings. In power-off stalls the back-pressure is quite heavy, and the plane will mush with a lazy bobbing of the nose. You may find your Cessna placarded to discourage any acrobatics, abnormal maneuvers, or even bank of more than 45-degrees. Such maneuvers are, of course, unnecessary; but you need not worry that it will fall apart if your bank exceeds 45-degrees in an emergency.

I put my wheels down when I enter the traffic pattern and reduce the speed to about 100 mph. Besides reducing the possibility of landing wheels up, the reduction in speed shortens the radii of turns in the approach. Action of the flaps is slow, and should be started in plenty of time to get the degree necessary. While waiting for the flaps to go down, I recheck the tailwheel lock, propeller control (full high rpm.), and mixture. Two-thirds flap is plenty, but more or less can be used to suit conditions.

I make the final approach at about 90 mph., although the Bobcat will float quite a bit if flared out to a 3-point landing at this speed. I prefer a tail-low wheel landing, dumping the flaps as soon as the tires touch. Anything over 80 is a safe speed for the final.

I think that the Cessna twin is easier to fly than many single-engine planes. It has no bad ground-looping tendencies, although many pilots who have been flying heavier and faster ships have trouble with it in cross-wind landings. Single-engine pilots may find it easier because of the help with a little throttle on the upwind engine. Certainly the tendency to weathervane is no greater than any other plane in its weight class, and should present no problem to alert, well trained pilots.

The rate at which they are being bought indicates that the public is wisely taking the criticism of the military pilots with a grain of salt. For the operator or private owner who wants a twin-engine airplane that is cheap to operate and easy to fly, the Cessna Bobcat is the answer. ★ ★ ★

WHAT THE NEW

Martin 2-0-2

MEANS TO AIRLINE MAINTENANCE MEN

Mareng Fuel Cells: Featured in the new Martin 202 are elastic fuel cells. These Mareng cells, like the bladder of a football, are easily installed or removed . . . may be quickly repaired.

THE ease with which the new Martin model 202 transport can be refueled and serviced means more than shorter stops and faster passenger schedules. It also means a lot of time and trouble saved by those unsung heroes of the air lines, the hard-working maintenance men. Unusual accessibility, rugged long-lasting construction, and emphasis on interchangeability of parts—these features make the Martin 202 the easiest plane of its type to service and maintain. Look at the facts listed below and you'll see why the 202 is the answer to a maintenance man's prayer!

THE GLENN L. MARTIN COMPANY, BALTIMORE 3, MARYLAND

Quick Refueling: To reduce waiting time at airports, the new Martin 202 is designed for under-wing pressure fueling . . . for oil tank servicing from the ground. No climbing on slippery wings in rain or snow.

Martin AIRCRAFT

Builders of Dependable Aircraft Since 1909

FACTS FOR MAINTENANCE MEN ABOUT THE NEW MARTIN 202!

- Radio, heating and electrical equipment, as well as control cables and hydraulic lines, all are located in the belly of the fuselage—are accessible through large "bomb-bay" type doors. Equipment is grouped to permit work on separate types with minimum of interference.
- Accessories at rear of engines are accessible from wheel-well through removable panel on fire wall. The 202 also permits under wing pressure fueling—oil tank servicing from ground. Adequate, quick-opening panels permit inspection of vital controls.
- Pilot's and co-pilot's flight group instruments removable as unit through nose wheel-well from back of instrument panel. Three-point suspension tubular engine mount is designed for maximum accessibility to engine.
- Flexible Mareng fuel cells, easily removed, installed or repaired. Cabin furnishings easily removable without tools.
- Special attention given to making all parts interchangeable. Wherever possible right and left hand parts are identical. Thus, for example, soundproofing consists of identical interchangeable panels, easily removed or installed without tools.
- Power plant mountings are designed for rapid replacement, right and left engines are interchangeable, cowlings are easily removed. Flexible, long-lasting, fireproof tubing for all fuel lines forward of firewall are specified.
- Landing gear consists of dual main wheels which are safer, lighter to handle, easily replaced—and a new style nose wheel which eliminates the complexity of the dual-sealed-tube type. Convenient jack pads permit easy replacement of wheels and brakes—down-and-up lock arrangement is simplified, reliable.
- These are only a few of the outstanding features of the Martin 202. From stem to stern this plane was designed to meet airline maintenance requirements as determined by long study of airline custom and procedure.

- The Martin 202 is engineered specifically to meet Air Transport Association specifications. Not just designed *for* the airline but *by* the airline—custom-built by Martin—to the most exacting standards of the air traveler.

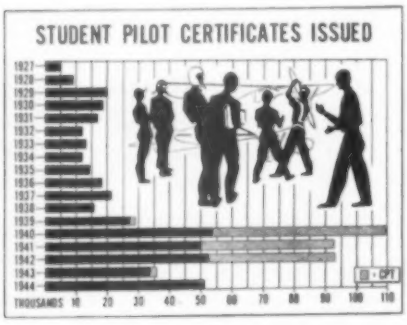
CAA FORECAST

(Continued from page 31)

between 1930 and 1944, the number of certificated pilots increased almost nine-fold during the same period.

Airports at 174 of the 286 places now designated by the Civil Aeronautics Board as air carrier stops are deficient in length of runways, clearness of approaches, and other features important to efficiency and safety. Furthermore, average ground time required for travel between city and airport is one hour and twenty minutes.

Equally important with airport development is the need for more technical aids and government-sponsored research. The CAA has particularly stressed the need for a fixed-wing airplane with slow flight characteristics. This type of airplane would encourage mass flying and prove invaluable for bad weather. Development of caster-type landing gear, as previously discussed, is already under study. The CAA stressed the need for Federal aid in remodeling "outmoded" airways, the installation of automatic position-reporting devices, VHF radio ranges, and the continuation of tower operations across the nation.



Airmen's Calendar

December 13-14—Airline Finance and Accountant Conference, Dallas.

December 16-17—International Aviation Day, El Paso.

December 17—Institute of Aeronautical Sciences, Washington, D. C., Meeting, Wright Brothers Lecture.

January 4-6—Miami Air Races.

January 7-11—Society of Automotive Engineers Annual Meeting, Book-Cadillac Hotel, Detroit, Michigan.

January 11-20—Cleveland Aviation Club Indoor Aircraft Show, Cleveland.

January 12-13—Dedication of New Orleans Moisant Airport, New Orleans.

January 21-22—Northwest Aviation Planning Council, Boise Hotel, Idaho.

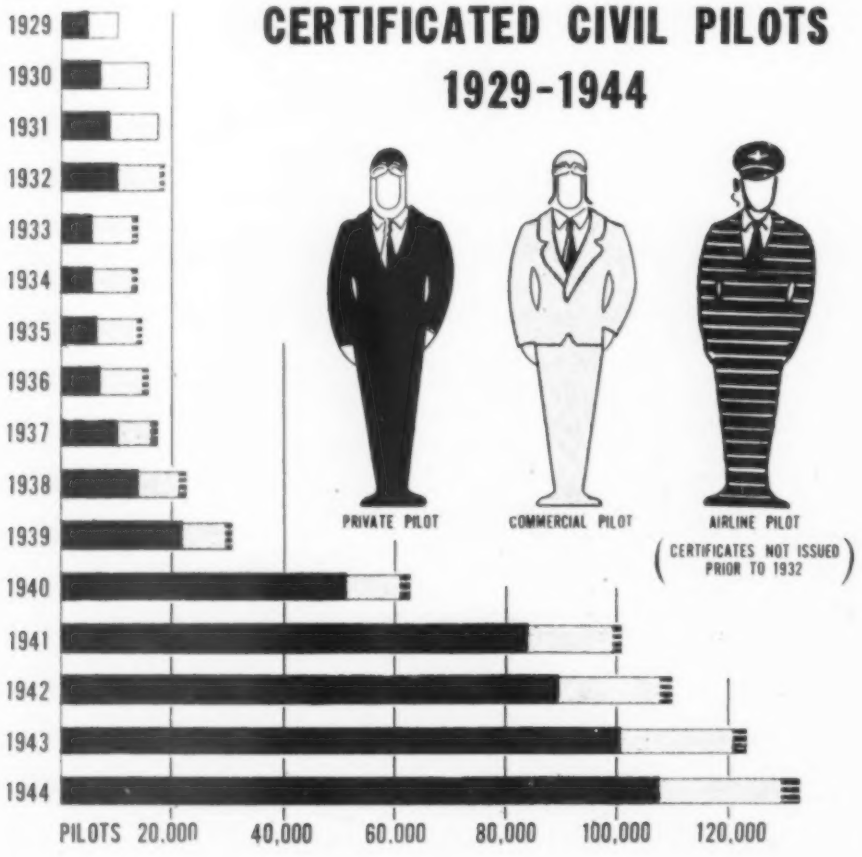
January 28-31—Institute of Aeronautical Sciences Honors Night (28) and Subsequent Meetings, New York.

March 1-5—Pan American Aircraft Exposition, Dallas, Texas.

March 10—National Aeronautic Association Board of Directors Meeting, Washington, D. C.

April 3-5—Society of Automotive Engineers National Aeronautic Spring Meeting, New Yorker Hotel, New York.

July 19-20—National Aeronautic Association National Convention, Omaha, Nebraska.



Proposed Ten-Year Program

A Federal ten-year program to stimulate the aviation industry should be built around a National Airport plan, a pilot training program, an aviation education program, continued research, and improved airway and technical installations. The CAA says its cost will prove a self-liquidating investment with direct benefits from stimulation of commerce. Specific points the program should stress, as listed by CAA, are:

A National Airport plan: With Federal aid up to 50 per cent, build 3,050 new airports, improve 1,625 of the 3,255 existing fields. Estimated cost, $1,250,000,000.

Pilot training program: Make elementary flight instruction available each year to 40,000 college students, war veterans, and other persons of college age. Total cost, $14,860,000, with the government paying 75 per cent.

Research: Develop in the fixed-wing lightplane some of the advantages of the helicopter, reduce propeller and exhaust noises, develop caster-type landing gear, simplify aircraft controls for safety and ease of operation. Cost, $1,000,000 annually.

Airways improvements: Re-lay Federal airways, convert 291 radio ranges to VHF, install twenty-four new-type direction finding stations and instrument landing systems at major terminals. Cost, $20,000,000. Install nation-wide automatic traffic control equipment. Cost $10,000,000. Turn over responsibility of tower operation to CAA for uniform operation and safety. Cost, $3,000,000 annually.

Aviation education: Continue and expand Federal program of aviation education in the schools. Cost, $125,000 annually. Regulations: Gradually modify policies of regulation decentralizing much of regulatory responsibility to the industry. With 400,000 aircraft and more than a million airmen, present policing practices would require an unwieldy body of government inspectors.

"Aviation is only one phase of the problem," the CAA concludes, "but what we do to salvage this war-spawned giant is in a sense a test of our ability to grasp and make real the tremendous potentialities of our whole postwar economy. Government, management, and labor working together built this 20-billion-dollar war industry. With equal foresight and co-operation, civil aviation can pioneer a new economic frontier." ★ ★ ★

Home of the Rockets

• Built for assembly line mass production of the **ROCKET—JOHNSON AIRCRAFT** recently completed a 41,600 square foot modern factory, where the "World's Fastest Light Plane" is *now* in quantity production.

• A concrete taxi strip, 1400 feet long, joins Johnson Aircraft's newly designed factory to Meacham Field–Fort Worth's multi-million dollar air terminal.

• In this new **ROCKET** factory the genius of 27 years of aircraft designing experience, together with modern assembly line methods, is dedicated to the mass production of **ROCKETS**, at low cost to you.

ROCKETS will *soon* be delivering their proud owners the **THRILL** of a 185 M.P.H. cruising speed–the **CONVENIENCE** of a 1000-mile range–the **SAFETY** of 50 M.P.H. landings–and the **LUXURIOUS COMFORT** of an airliner. The **ROCKET**, fully equipped, delivers for only $5000 F.A.F., Fort Worth, Texas.

There is *now* **AUTHORIZED ROCKET** Sales and Service near you–and soon **ROCKET** Demonstrators will be available for you to see and fly. Write now for full information and name of your nearest authorized **ROCKET** Dealer.

The ROCKET AIRCRAFT SALES *Corp.*

FORT WORTH 6, TEXAS, U.S.A.

B-29 Pool's Record of 3,888 Superfortresses Cited as Work Ends

The B-29 Committee, the greatest single war production pool, has been dissolved. Composed of representatives from Boeing Aircraft Company, Bell Aircraft Corporation, the Glenn L. Martin Nebraska Company, the Fisher Body Company and the Army Air Forces, the Committee, formed in 1942, co-ordinated production and speeded transportation. From this group, 3,888 Superfortresses were completed by November 1, 1945. Of these, 1,050 were built at Boeing's Seattle-Renton plant, 1,644 at Boeing's Wichita plant, 663 by Bell at Marietta, Ga., and 531 by Martin at Omaha. The B-29 Committee was formed after the Boeing-Douglas-Vega Committee, under whose program 12,731 B-17's were produced.

Fairchild Making Boats With Plywood Process

A molded, plastic-bonded, plywood car-top boat is being manufactured by the Duramold division, Fairchild Engine and Airplane Corporation. The largest of the new Duramold boats, weighing 68 pounds, is 12 feet long with 48½-inch beam, and the smallest car-top boat is 6 feet 9 inches long, with a 44-inch beam. No joints or screws are needed in the Duramold process, the boat being constructed in a laminated fashion with thin layers of wood veneer. The entire boat is bonded into one piece by baking it under heat and steam.

Standards Group Meets

The National Aircraft Standards Committee of the Aircraft Industries Association held its semi-annual meeting last month at St. Louis, instead of the originally-scheduled meeting in Chicago. Capt. G. B. H. Hall, former commanding officer of the U. S S. Enterprise, was among the guests at the meeting.

Engineers Told Aircraft Design Lagging Behind Jet and Turbine Progress; Eaker Praises Industry Record

What commercial and military aviation must do to realize potentialities of jet and rocket propulsion, and the air power problem posed by the atomic bomb shared the spotlight at the 66th Annual Meeting of the American Society of Mechanical Engineers in New York November 27.

The atomic bomb makes both defensive and offensive air power absolutely imperative for national survival, declared General Ira C. Eaker, Deputy Commander, Army Air Forces. "Air power provides not only the best present means of striking an enemy with atomic bombs, but also the only available protection against the misuse of atomic explosives," said General Eaker. Eaker lauded the aviation industry for its fine co-operation during the critical phases of the European war.

Future development of jet propulsion demands continuing research into design and construction both of the jet engine and the planes which will use it, declared Dr. William F. Durand, winner of the annual ASME medal for his work in jet propulsion. Dr. Durand compared present jet engines to the internal combustion engine of forty years ago.

Jet craft design is lagging far behind jet engine improvements, emphasized G. Edward Pendray, secretary of the American Rocket Society and one of the country's foremost proponents of rocket power. "It seems not unlikely that velocities up to 1,500 or 2,000 miles an hour will be possible so far as the engine is concerned, Pendray said, but important changes in aircraft design will be necessary to fly at such speeds.

Although both jet propulsion and gas turbines are destined to play an important role in commercial air transport, the propeller-driven gas turbine will have an even wider application, declared S. R. Puffer and J. S. Alford of the supercharger engineering division of General Electric Company. Freedom from vibration, simplicity of control, absence of radiators, spark plugs, and carburetors, quietness of operation, decreased fire hazard, and lower specific weight are qualities which make the propeller-drive gas turbine excellent for air transport, Puffer and Alford emphasized.

To speed development of gas turbine design, engines are now tested in a flying laboratory, revealed N. F. Frischhertz, W. R. Orme, and W. O. Meckley of the General Electric Company. The experts revealed General Electric has a modified B-24 Liberator bomber which carries a jet engine and a large amount of instrumentation to high altitude. The jet unit is installed in the fuselage simulating installation in current experimental aircraft. Air is rammed into the machine through a large airscoop (4.2 sq. feet). Kerosene is carried in bomb bay fuel cells.

Kinner Changes Name To Gladden Products

Kinner Motors, Inc., has changed its name to Gladden Products Corporation. There is no change in executive or directoral personnel, with John N. Gladden as president. Gladden Products Corp. will follow the same sales and manufacturing policies as those used by Kinner. The company now has four correlated manufacturing and sales activities, the latest being the foundry division. Gladden is now at work on designing a new, small, horizontal-type engine for private aircraft. The company is also continuing to make replacement parts. To date, $500,000 of orders have been received for the engines.

Fairchild Camera is RFC Surplus Sales Agent

For the sale of government surplus aircraft navigational instruments, aerial cameras, and some other equipment, Fairchild Camera & Instrument Corporation has been appointed an agent for the Reconstruction Finance Corporation. The company is working on adaptations of the various instruments to new uses to get better prices on the surplus material. Fairchild will also handle sales for the RFC of some aerial camera mountings and film magazines not of its design.

Arthur E. Raymond New Head of IAS

Arthur E. Raymond, Santa Monica, California, is the new president of the Institute of the Aeronautical Sciences for 1946, succeeding Charles H. Colvin, New York. Raymond, vice president in charge of engineering for Douglas Aircraft Company, is a graduate of Harvard University and received his M. S. in aeronautical engineering from the Massachusetts Institute of Technology. He was assistant professor of aeronautics at California Institute of Technology before joining Douglas in 1925. Raymond is a Fellow of the Institute of the Aeronautical Sciences, a society established to advance the arts and sciences of aeronautics, and having over 6,000 members in the United States and abroad.

$266,000,000 Douglas Backlog After Cutbacks

Although the end of the war brought Douglas Aircraft an abrupt 63 per cent reduction in military orders, the company entered the last quarter of 1945 with a military and commercial backlog of $266,000,000.

Douglas sales and billings for the nine-month period in 1945 were $642,514,000 with a net income of $4,921,000, the company announced. Working capital available at the end of the third quarter was $64,407,000.

In Peace, as in War, we dedicate ourselves to courteous, efficient service to the aviation industry.

Manufacturers' Agents for Berry Brothers . . . Flightex Fabrics . . . Kollsman Instruments . . . Romec Pumps . . . Westinghouse . . . McWhyte . . . Rohem Valves.

THE AIRCRAFT STEEL & SUPPLY COMPANY

WICHITA, KANSAS

Airbase

FASTENING DEMANDS MET WITH A "PULL" RIVET

PULL
Pulling head of Cherry Rivet gun engages head of Cherry Rivet stem. Stem is pulled into rivet, upsetting blind head and expanding shank to form a tight, secure, permanently plugged Cherry Rivet.
P.A.A.
NC-1861

Cherry Rivets being used to repair the forward cargo compartment of Boeing 314 at Pan American World Airways Atlantic Division Base, LaGuardia Field, N. Y.

CHERRY BLIND RIVETS are "pull" rivets—that is, they are upset by a controlled pulling action instead of the ordinary severe pounding force.

This action permits their installation by one operator from one side of any application, blind or not. No bucking is needed. It gives them characteristics which fully meet airbase installation demands.

Cherry Rivet hole size and material thickness tolerances are generous—eliminate size-drilling and reaming—allow re-use of original rivet holes.

Strength and vibration qualities are exceptionally high—meet the tough demands of military aircraft.

Application tools are small, easy-to-handle pneumatic or hand guns. Installation process is reduced to a minimum number of steps.

Cherry Rivets upset in pliable or brittle materials, as well as all sheet metals.

Cherry Rivets are manufactured in several types, head styles, diameters, grip lengths and alloys.

For more detailed information, ask your jobber for illustrated Manual D-45, or write directly to the Cherry Rivet Co., Department A-145, 231 Winston St., Los Angeles 13, Calif.

CHERRY RIVETS, THEIR MANUFACTURE & APPLICATION ARE COVERED BY U. S. PATENTS ISSUED & PENDING

Cherry Rivet
Company
LOS ANGELES 13, CALIFORNIA

Aireon Sales Decline But Firm Expanding

Aireon Manufacturing Corporation's sales for the past fiscal year declined $6,316,217, reflecting reduced requirements of the armed forces, according to Randolph C. Walker, president of Aireon, in his annual report to stockholders. Since April 30, Aireon has added five new subsidiaries, having assets of $700,000; the Lewis Electronics, Inc., is the fifth subsidiary. First quarter of the current fiscal year showed unaudited net profit to be $44,550. Unfilled government orders on July 31 were about $12,700,000 and $8,900,000 was canceled during August. Work is continuing on $1,125,000 of radar contracts for the Navy. The company is now producing hydraulic units, oil drilling supplies, communication systems for railroads, airports, airlines and mobile radio communications systems.

THE RECENT INTERNATIONAL AVIATION CONFERENCE in Montreal included leaders from Provisional International Civil Aviation Organization and the International Air Transport Association. Shown, left to right, are: A. R. McComb, Australian delegate to PICAO; Dr. Edward Warner, president, PICAO; H. J. Symington, president, IATA; J. C. Cooper, chairman executive committee, IATA; Major J. Ronald McCrindle, IATA; Maj. Gen. T. H. Shen, IATA, and Lt. Col. J. Verhaegen, PICAO.

SHIPSHAPE!
Pilots know that safety depends on taking every precaution. A pair of dependable INTERNATIONAL FLARES may mean the difference between a safe emergency landing and a crackup.
Shown is a typical installation of two 3-minute INTERNATIONAL PARACHUTE FLARES in a Beechcraft, Model D18S. Insert shows the electrically controlled release switch, with safety cover, mounted conveniently near instrument panel.
INTERNATIONAL offers a complete line of Parachute Flares to meet all weight classification requirements of the C.A.A.
INTERNATIONAL
FLARE-SIGNAL DIV.
of THE KILGORE MFG. CO. Tipp City, Ohio

AVCO Sales Drop

The Aviation Corporation announced that its net sales for the first nine months of 1945 was $25,020,178 compared with $49,303,547 a year ago. Earnings for the period after all charges were taken out was $2,159,739. The Aviation Corporation has investments in American Airlines, Inc., Pan American Airways Corp., and Roosevelt Field, Inc. The Corporation has entered into a contract to purchase controlling interest in New Idea, Inc., a farm implement firm.

Waco in Standards Group

The Waco Aircraft Company has joined the National Aircraft Standards Committee of the Aircraft Industries Association, becoming the second personal aircraft manufacturer to join this year, the first being Taylorcraft. Waco is also a member of the personal aircraft council of the AIA. The purposes are to reduce costs, increase utility, improve quality and reduce maintenance through aeronautical standardization.

Douglas Names Six Service Representatives

Douglas Aircraft Corporation has named six service representatives for permanent assignments with the company in six major areas of the United States. All of the technicians have completed a refresher course at the Santa Monica plant to familiarize them with the latest developments in new equipment. W. A. Spencer has been assigned to Douglas' New York area office; J. B. Paden, to the Chicago area; Hugh C. Foster, to the Miami area; W. A. Larner, to the Kansas City area; Ed F. Laich, to the Dallas area, and J. Lyle Berry, to the Los Angeles area.

German Patents Available from U. S. Custodian

Forty-three U. S. patents and patent applications, seized from Askania-Werke, A. G., German manufacturer, are now available for licensing to American citizens on a royalty-free, non-exclusive basis for the remaining life of the patent, according to James E. Markham, alien property custodian. An administrative fee of $15 is charged for each patent. The group includes a variety of instrument and gyroscopic mechanisms for airplane control and navigational aid. A list of the patents and patent applications may be obtained from the Patent Use and Development Section, Office of Alien Property Custodian, Washington 25, D. C.

SERVICE REPORT

THE PARKER APPLIANCE COMPANY

We continue to get good reports on the performance of Parker products on combat aircraft -- especially the Curtis "Hell Diver", one of the most effective carrier-based planes.

The Hell Diver uses a very extensive hydraulic system -- to operate wing folding, wing hinge pins, landing gear, brakes, bomb doors, flaps, dive brakes and auto pilot. This calls for a large number of Parker valves and fittings.

One of the special features is the Parker de-fueling valve, used to drain off fuel when taking plane below deck for servicing or in emergencies.

This valve must operate quickly and must give complete protection against leakage of highly volatile gas. This was a difficult problem, solved only by experience. Pilots and maintenance men tell us that no other de-fueling valve is so dependable as the one designed and built by Parker.

Isn't there a possible use for this valve in industry -- for example, emptying tank cars, draining chemical or processing tanks, and the like?

The patented Parker Triple Coupling—easy to install and service—proof against leakage and vibration.

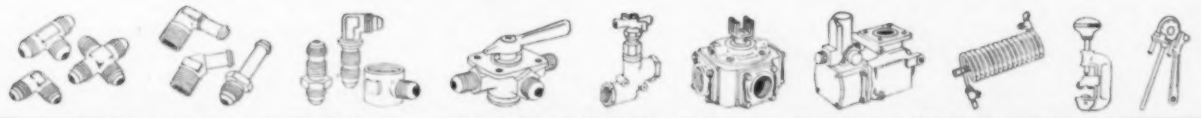
The principle of this coupling is the basis for modern Fluid Power Systems.

The record of Parker couplings, valves and fabricated tubing is one of complete dependability in both war and peace.

Whatever you make, or plan to make, consult a Parker Fluid Power engineer on tubing systems for either fluid or power transmission. The Parker Appliance Company, 17325 Euclid Ave., Cleveland 12, Ohio.

THE PARKER APPLIANCE CO.

CLEVELAND • LOS ANGELES



FLUID POWER PRODUCTS FOR ALL INDUSTRY

Mallet McMullen Sidebottom Palmer

PERSONALS

LEONARD C. MALLET, a veteran of sixteen years with various divisions of United Aircraft Corporation, has been named assistant general manager of the Pratt & Whitney Aircraft division in East Hartford. . . . F. C. McMULLEN, formerly in charge of aviation radio sales for Western Electric Company, has been appointed chairman of the aviation section of the Radio Manufacturers Association's transmitter division . . . JOHN H. SIDEBOTTOM continues as assistant technical service director in charge of activities of the engine and propeller technical committees of the Aircraft Industries Association, and IVAR C. PETERSON, formerly with the National Advisory Committee for Aeronautics, has been appointed director of the technical service of the Aircraft Industries Association, succeeding EUGENE W. NORRIS, who resigned. . . . RICHARD C. PALMER, formerly general manager of the National Aircraft War Production Council, has been appointed special assistant to the president of Fairchild Engine and Airplane Corporation.

MARK E. NEVILS, director of information of Curtiss-Wright Corporation for the last seven years, has been appointed director of the news bureau of Eastern Air Lines, Inc., with offices in New York City. . . . WILLIAM WISEMAN, formerly chief engineer of Warner Aircraft Company, has been named assistant chief engineer in the aircraft division of Continental Motors Corporation. . . . M. M. MAXFIELD, formerly on the engineering staff of the Curtiss-Wright Corporation, has joined the Glenn L. Martin Company as sales engineer of the company's new Model 202. . . . L. G. SNYDER has been appointed sales manager of Associated Research, Inc., with direct charge of all sales and advertising for the corporation.

JOHN SNURE, JR., formerly assistant director of public relations for Bell Aircraft Corporation, has been named director of public relations for the firm. Snure succeeds STEPHEN E. FITZGERALD, who resigned. . . . F. J. BAUM, original project director on the Northrop P-61 Black Widow, has been named Dayton representative for Northrop Aircraft, Inc., for liaison between Northrop Field and the Air Technical Service Command. S. E. WEAVER, Northrop's former representative at Dayton, returns to Northrop Field for a new assignment. . . . MORTON H. WILNER and MICHAEL J. KEANE, JR., have been retained as consultants on readjustment problems for the Aircraft Industries Association. . . . LEWIS A. ROBERT, formerly section head of flight engineering of Ames Aeronautical laboratories of the NACA, has joined the research staff of Stewart-Warner Corporation's heater plant at Indianapolis.

G. M. WILLIAMS, formerly senior vice president of Curtiss-Wright Corp. and executive vice president of Wright Aeronautical Corp., has returned to the presidency of the Russell Manufacturing Company. . . . RALPH E. MIDDLETON, a vice president of Aireon Manufacturing Corporation, has been named general manager of the corporation's hydraulic division. . . . LT. COL. NATHANIAL F. SILSBEE, Air Corps, has joined the Henry Publishing Company, publishers of *Skyways* and *Airways Traveler* magazines, as technical editor of *Skyways*. . . . WILLIAM D. NEWHORT has been appointed treasurer of Menasco Manufacturing Company.

KENNETH D. HALLECK, Washington sales representative for the Aireon Manufacturing Corporation, has been named a director of Aireon, and Halleck's headquarters are to be moved to Kansas City as administrative assistant to A. E. Welch, executive vice president. . . . ROBERT V. KERLEY has been appointed director of aeronautical research for Ethyl Corporation, succeeding S. D. HERON, who resigned. . . . DONALD McCLAIN, formerly in the service department of Pratt & Whitney, has been appointed engineering representative in the New England area for the Aircraft Screw Products Co., Inc. BERT CARPENTER COMPANY has been appointed sales representative for Michigan and Northern Ohio on the Plan-O-Mill Corporation's line of machine tools. . . . R. C. COSGROVE, vice president of The Crosley Corporation, was named vice president in charge of sales for the Aviation Corporation. Cosgrove will remain as vice president of The Crosley Corporation and general manager of its manufacturing divisions.

JOHN V. HUNTER, III, after four years' service with the AAF, has returned to civilian life as a member of the staff of *Motor Service* and *Aviation Service* magazines.

HOME for them!

and the HOME STRETCH for YOU!

You still have time! In December, your employees' allotments to the Victory Loan through your company's Payroll Savings Plan offer you a final chance to help speed the homecoming of our fighting men—do all in medical power for our hospitalized heroes!

Make December a plantwide TOP-THE-QUOTA drive! Now's the time to "brief" your Bond-selling organization for fast, last minute action!

See that every employee is resolicited to buy the new Franklin Roosevelt Memorial $200 Bond! Better than cash in hand because it earns interest, this $200 Bond is a strong building stone toward the secure future of every employee-purchaser!

From now 'til the New Year—with plant rallies, interdepartmental contests and resolicitation—keep your Payroll Savings Plan at a new Victory Loan high! Buying a Victory Bond is the best way of saying "Welcome Home" to our returning veterans! Also an active aid in assuring prosperity to your nation, your employees —and your own industry!

The Treasury Department acknowledges with appreciation the publication of this message by

Southern Flight

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and War Advertising Council

Co-ordination

Co-ordinating research with manufacturing, Solar developed the above motion picture equipment to record entire welding operations under controlled conditions.

IN GOLF, complete co-ordination of skill and knowledge set the champion apart from the rest. So it is in fabricating stainless steel. This too, requires co-ordination of specialized skill and knowledge that only years of engineering, designing and fabricating can achieve.

Solar's universally recognized "know-how" in all stainless steel forming techniques, from deep drawing to precision casting, is a result of many years experience. Solar designed and built the first successful stainless steel airplane exhaust system for the Navy in 1931. And through all of the remarkable developments of the aircraft industry, including jet and gas turbine engines, Solar remains the industry's leader in producing heat and corrosion resistant products.

If your product or its parts can be built better with stainless, take advantage of this wide experience by sub-contracting this work to Solar. A letter to Solar will establish the contact.

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AIR TRANSPORT

Airline Concern Over Contract Haulers Shown During Aviation Clinic

By E. H. PICKERING

That the airlines fear the inroads of non-scheduled air freight carriers became obvious during the National Aviation Clinic last month in Oklahoma City. When representatives of fixed-base operators proposed a resolution that the Civil Aeronautics Board continue its order exempting non-scheduled carriers from economic regulations for a period of three to five years, airline representatives took a defensive attitude. O. M. (Red) Mosier, vice president of American Airlines, and T. E. Braniff, president of Braniff Airways, called for "due consideration."

John Paul Jones, speaking for the smaller operators, commented that "the airlines think no more of $10 than I do of both my arms," referring obviously to small charter fees.

But in the background, it seems obvious, was the airlines' worry over the development of "big-time" competition from such organizations as National Skyways Freight, "The Flying Tiger Line," which reportedly has snagged a $200,000-a-year contract from American Airlines for flying flowers from California to Dallas and Chicago. Such organizations, operating on a contract and non-scheduled basis, are also free from economic regulations under the CAB's exemption order.

Earlier in the Clinic, Jack Frye, TWA president, struck a solid conservative note when he stated that elements of safety, dependability, and high standards of service must be worked out by the airlines before reduction of rates should be considered. Frye stated that he felt there was too much optimism both in and out of aviation regarding low rates for passengers and freight.

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Complete Line of Self-Cleaning and Tubular Punches and Steel Rule Dies for cutting gaskets, cloth, leather and wood parts, etc.
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Fewer Emergency Landings in Transoceanic Operations, But Outmoded Instrument Procedure Handicaps Traffic

"Ditching" possibilities on transoceanic flights, international air traffic control and navigation, and airline lighting and air-conditioning were some of the problems discussed by experts at the National Air Transport meeting of the Society of Automotive Engineers in Chicago.

Chances of "ditching" an international airliner on the New York-London flight, for example, are about one in 16,576, estimated Frank R. Canney of Boeing Aircraft Company. B-29 records during the war — one "ditching" per 750,000 miles—proved emergency water landings are becoming progressively fewer. Increased cruising speeds and engine performance, plus careful attention to weather, are several of the many factors making chances for commercial "ditching" even better than the B-29 record, Canney added.

International air traffic already has reached proportions that create serious airways control and air navigation problems at major terminals, experts declared. Traffic control is handicapped by the same fundamental limitations as in 1930, for planes are still required to make the same instrument approaches used when instrument flying was first inaugurated. Capt. S. P. Saint, of American Airlines, proposed development of a comprehensive system of air navigation, traffic control, and communications incorporating every known principle of safety engineering. Capt. H. G. Gulbransen, of Pan American Airways, declared navigation of transoceanic planes remains a job for specialists. Some airliners are even contemplating placing the navigator in command of the plane, he said, because of dependency upon this highly-trained officer.

As a direct result of public demand for comfort, air conditioning systems and fluorescent lighting are being installed in commercial airliners. Referring to refrigeration, Bernard L. Messinger of Lockheed Aircraft Corporation said air turbine refrigeration has been found by test to afford simplicity, lightness, compactness, and highly effective use of air as a refrigerant.

Cargo airplane design and cargo packaging also received attention. M. B. Crawford of United Air Lines stressed that while cargo planes provide fast transportation speed advantages are lost unless and until designers of aircraft, shippers of commodities, and handlers of air freight co-operate to develop the basic methods of this new business. Standard methods of cargo tie-down and cargo repacking were suggested by Lt. Col. David W. Long of the Air Transport Command. Standardized loading equipment and smooth, fast, economical handling were the keys to ATC efficiency during the war, Long declared.

"Engine Cooling Fan Theory and Practice" was adjudged the best treatise presented before an SAE meeting in 1944 and the author, Kenneth Campbell of Wright Aeronautical Corporation, was awarded the 1944 Manly Memorial Medal. The paper, which also won the SAE Wright Brothers Medal, compiled and explained exhaustive studies based on design and engineering requirements of fans used to cool aircraft powerplants.

Domestic

James K. Dobbs of Hull-Dobbs Enterprises, operating eleven airport restaurants and catering service for sixteen airlines, will introduce the Dobbs Flitecar System at airports where he has restaurants or catering service. This system will provide new Fords for use of air travelers at usual car-rental rates. Reservations for the service can be made in advance, and arrangements are now proposed where fees for such service can be charged to a businessman's air travel account.

Jacksonville, Florida, has been chosen as the operations base for Eastern Air Lines' new Detroit-Miami route.

If All American Aviation's request to the CAB for permission to inaugurate combination passenger and pickup service over two of its routes between Pittsburgh and Huntington, West Virginia, should be granted, the development will be watched with extreme interest by feeder airline applicants and others. Successful operation by All American of such a service would have a tremendous effect on the future of the nation's air transport system.

Air Freight

United Air Lines is operating the first "reefer" plane in history, an insulated and dry-ice refrigerated DC-3 made up of five containers, accommodating 1,600 pounds each. In the first test operation, an east bound flight carried flowers, fruits, vegetables, and emergency serum, picking up celery at Salt Lake City and carnations at Denver. The return flight carried two and one-half tons of haddock fillets from Boston to Chicago and San Diego, picking up two tons of Great Lakes whitefish at Chicago. . . . The Wirebound Box Manufacturers Association announces that special wire-bound crates for shipping airborne perishables have been designed that reduce the weight of containers as much as one-half to two-thirds. An airborne lettuce container, for example, has been reduced in weight more than six pounds, and a celery container reduced from 5 lbs. 8 oz. to 2 lbs. 10 oz.

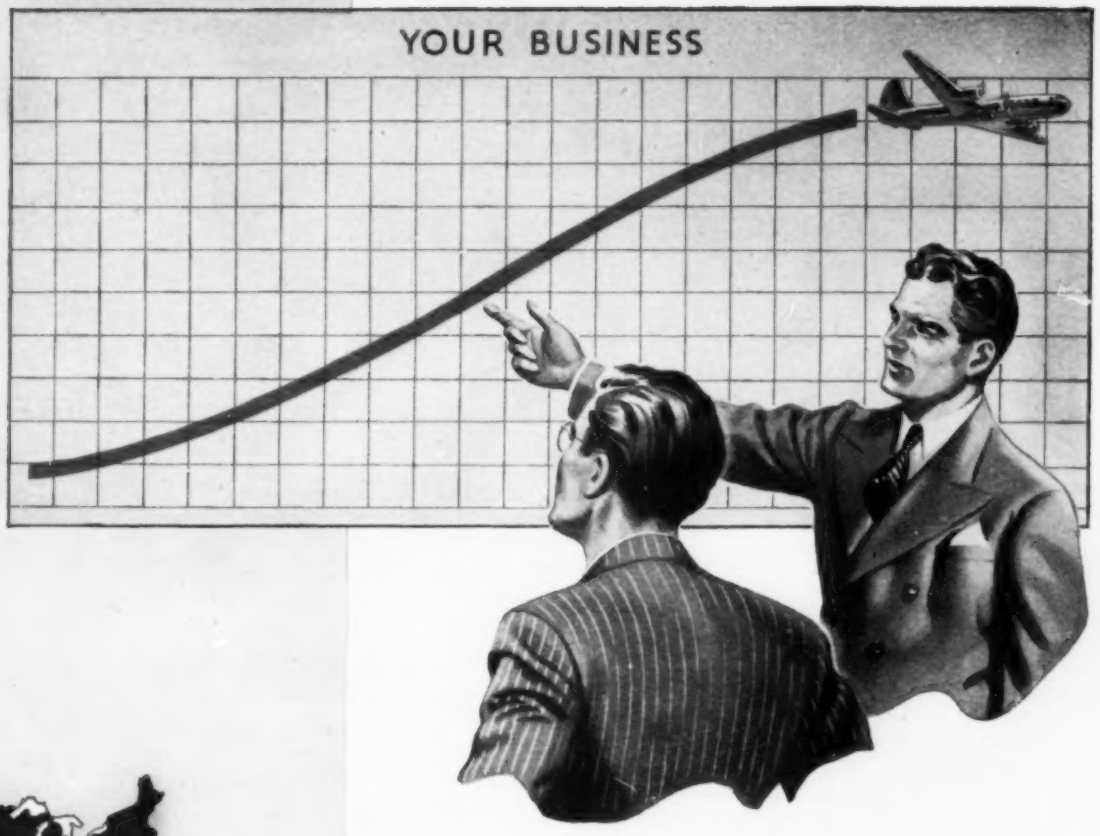
Following close on the heels of the proposed merger of Mid-Continent Airlines with the American Airlines System, now awaiting CAB decision, comes announcement of the proposed merger of Pennsylvania-Central Airlines and Northeast Airlines, which has been authorized by the directorate of both organizations. At least two other mergers are reportedly under consideration, one of which involves Colonial Airlines and Eastern Air Lines.

International

Pan American Airways has announced increased schedules over its Latin American routes resulting in twenty-two daily flights between Miami and Havana; four daily flights from Miami to Barranquilla, Colombia, and the same number between Miami and Nassau, Bahamas. Inauguration of night service between Miami and Port of Spain, Trinidad, will be made with two schedules nightly each way. . . . Commercial air service to Hawaii was resumed November 16 with daily round-trips between San Francisco and Honolulu. . . . Pan American C-54's will carry 16 mm. sound projectors for the showing of feature films, shorts, and newsreels. The screen will be mounted in the front of the cabin with four speakers in the ceiling along the aisle. . . . The first of TWA's thirty-six Constellations was delivered in Las Vegas, Nevada, November 14. Constellations will be used for fourteen-hour flights between New York and Europe.

70 Per Cent of Eastbound Seats Reserved for Troops

About 70 per cent of seats of eastbound planes leaving the West Coast have been reserved for Army, Navy and Marine personnel, leaving about 30 per cent of seating capacity available for civilian travel, in accordance with an ODT order. Westbound traffic is not affected by the order. Four main transcontinental airlines will be utilized, and ten airlines will share in the movement.



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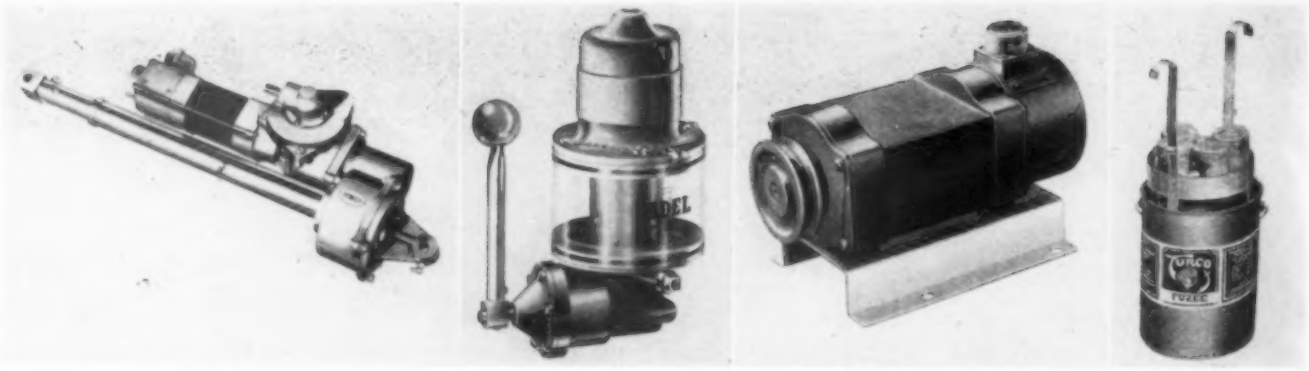


Actuator | Power Package | Generator | Cleaner

New Electric Actuator

An electric actuator for large planes has been developed by the Electric Engineering and Manufacturing Corporation, Los Angeles. Loads up to 16,500 pounds in one direction and 8,000 pounds in the other are permissible under maximum load conditions. One actuator is required, and a single switch raises and lowers the stabilizer at the rate of 5/8-inch per second.

Receptacles for Altitude

Cannon Electric Development Co., Los Angeles, is making an improved line of AN and K standard connector type pressurized receptacles to meet demands of higher altitude flying where pressurized cabins are required. AN sizes from 12S to 44 inclusive are available. Only Nos. 20, 16 and 12 small contacts are ready at the present time.

New Hydraulic Power Package

Compact, lightweight source of power for actuation of landing gear and wing flaps in lightplanes is provided by a new hydraulic power package developed by Adel Precision Products Corporation, Burbank. It is also adaptable to non-aircraft uses. The unit comprises an electric gear-type fluid pump, visual reservoir, adjustable pressure relief valve, and others. It delivers fluid under 300 psi pressure. Because of the compact design, the power package may be mounted forward of the instrument panel or in any small space convenient to the pilot without interference with other controls. Operation is controlled by handle.

Lightweight Generator

Electrical Engineering and Manufacturing Corporation, Los Angeles, is manufacturing a new generator weighing one-half as much as those formerly available. It is available in 500, 600 and 1,200 watt capacities, at 32 and 120 volts. The generator is totaly enclosed, glass-insulated and equipped with life-time-lubricated ball bearings. It weighs 20 to 25 pounds, depending upon the rating.

Device Sorts Anodyzed Rivets

As a means of improving methods of anodyzing rivets, an electronic device has been developed by Walter H. Bankard, of the Glenn L. Martin Company. The device is attached to a standard rivet sorter, and, as the rivets pass through the separator, the contact point touches the head of the rivet, and if the rivet does not come up to anodic specifications, a small relay is energized, and the relay throws out the rivet. It is an electrical device with a magnetically operated lever.

New Line of Hydraulic Presses

Munton Manufacturing Company, Franklin Park, Illinois, has brought out a versatile line of positive self-contained hydraulic presses, adaptable to all sizes and types of shops. They have a foot operated motor drive for production work. The presses are available in capacities from four and one half to twenty-five tons, with means to limit pressures as low as required. They are rugged in construction and reinforced where needed. Literature is available upon request.

New Cleaner for Cold Tanks

Turco Products, Inc., Los Angeles, has announced that its Fuzee, a self-sealing compound for use in cold tank immerson, is now available to civilian users. The product cleans pistons, fuel pumps, carburetors, and the like, removing carbon, engine varnish and other adhesive dirt. Information is available upon request.

Less Vibration In New Sanders

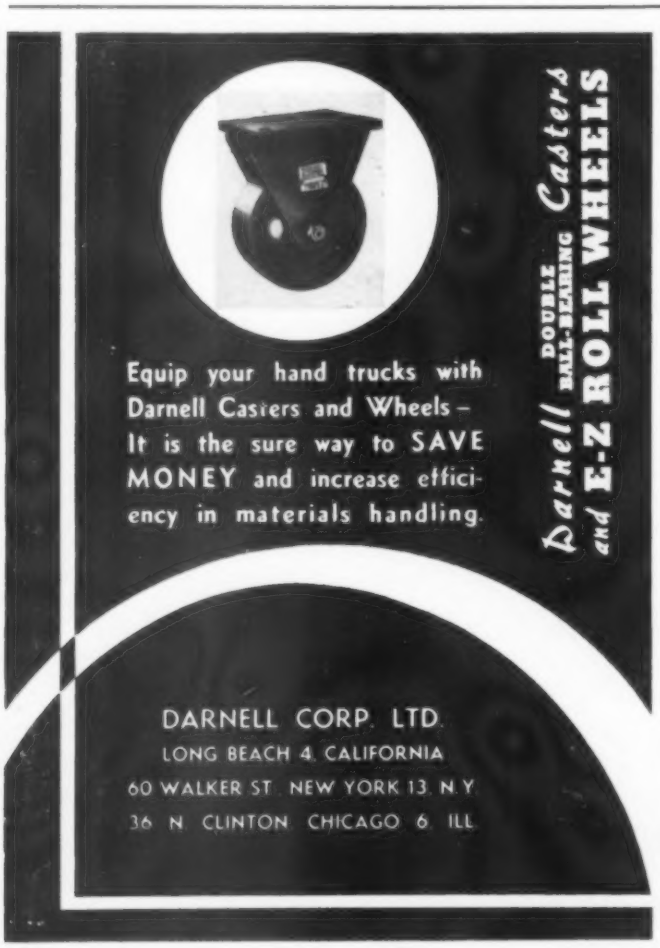
Two new models of Easy Reciprocating Electric Sanders, models XL50 and XL90, are being manufactured by the Detroit Surfacing Machine Company. The company claims that the new models are practically vibrationless, cut faster and are easy to operate. They have a pistol-grip handle and a slide type switch. The products have proven desirable for new and refinishing applications on plastics, metal, wood, slate, leather or composition. The XL90 units have detachable sanding pads.

Plastic Container for Batteries

Offering a 20 per cent reduction in weight compared with aluminum and rubber, an all-plastic battery container is used to house the specially-designed 12-volt battery used in Lockheed's jet-propelled P-80. The plastic battery container is manufactured by the Electric Storage Battery Company, Philadelphia. It weighs less than 10 pounds, and has good heat and acid resistance.

Spiral Reamer More Accurate

A dural spiral expansion reamer having a solid one-piece body all the way from the driving end to the lower lock nut is being made by Lempco Products, Inc., Bedford, Ohio. The construction reduces the number of component parts, and the cutting blades spiral even more concentrically than previously, and runout is held to a minimum, insuring accuracy in close tolerances.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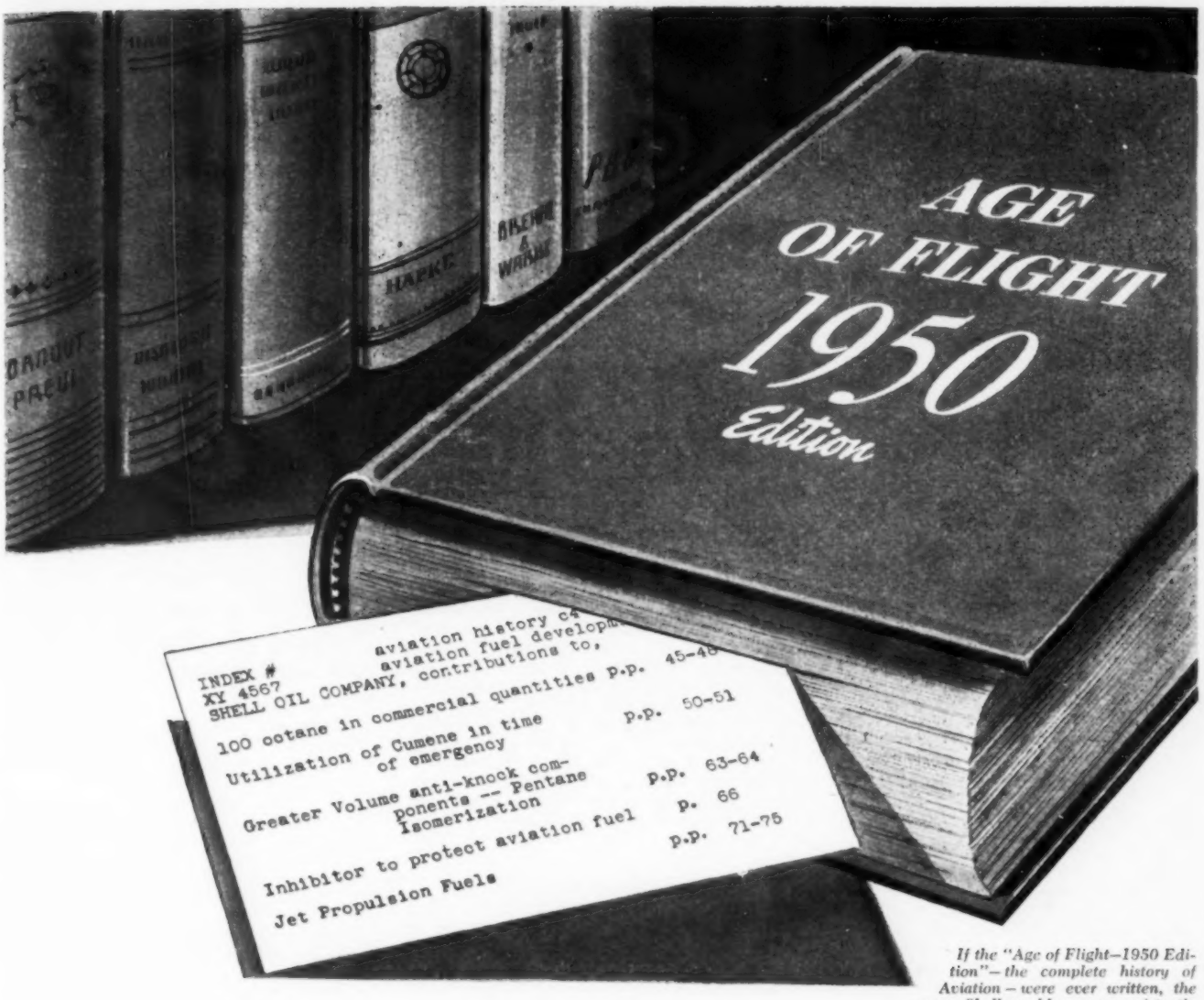
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FINER FUELS FOR THE AGE OF FLIGHT

1,200 Planes Expected for Tour to Florida

At least 1,200 private planes, all from states east of the Rocky Mountains, are expected to participate in the first postwar light airplane tour to Florida. The tour, an annual affair before the war, will be renewed this year—December 26 to January 20—by the Gulf Oil Company and eleven participating plane manufacturers.

Once the largest lightplane event in the country, the tour is sponsored to stimulate cross-country flying in lightplanes of 125-hp. and less and is open to planes with engines of 125 horsepower or less. Invitations to participate are being issued to lightplane owners by the participating aircraft builders and all questions of eligibility should be addressed to the builders of the make of plane in question. As soon as acceptances are received, courtesy books for free gasoline and oil and routes of the Gulf "airways" will be sent out.

Major Al Williams, manager of the Gulf Aviation Department, said that the tour is set up so that participants may plan their departure, landings, lengths of stops and arrival in Florida to suit their convenience. Participating manufacturers are Aeronca, Culver, Globe, Funk, Harlow, Luscombe, Piper, and Taylorcraft Aircraft Corporations, the Stinson Division of Consolidated Vultee Aircraft Corporation, Engineering and Research Corporation, and the Commonwealth Aircraft Corporation.

Elaborate Plans for Cleveland Air Show

The national aircraft show in Cleveland January 11 to 20, 1946, will be the largest aircraft show in history, according to Gene P. Robers, recently appointed vice president in charge of publicity and promotion. New planes and equipment, plus extensive Air Force equipment from Wright Field, will be on exhibition.

A non-profit Air Foundation, recently-created by Cleveland business and civic leaders for the purpose of contributing to aviation advancement, will lend financial assistance to organizations sponsoring the aircraft show. The Foundation will aid in sponsoring the National Air Races next summer and plans to promote aeronautical education through scholarships and research. Creators of the organization were Frederick C. Crawford, president of Thompson Products, Inc.; A. J. Weatherhead, president of the Weatherhead Co.; A. C. Ernst, managing partner of Ernst & Ernst; and W. T. Holliday, president of the Standard Oil Co. of Ohio.

Stout Calls for "Panty-Waist" Plane of Future; Radar Landing System Urged for Private Fliers

Private fliers who attended the Joint Private Flying Conference in Washington, D. C., November 26-27 heard William B. Stout, noted plane designer, outline requirements for a private airplane of the future; Elizabeth Gordon, managing editor of *House Beautiful*, tell what will be necessary to "sell" flying to women; Lt. Col. C. B. Sproul criticize the CAA approach control system; James W. Batchelor, general counsel, United Pilots and Mechanics Association, sharply attack the CAA for grabbing power, and Ray Nyemaster, Jr., president Des Moines Chapter of NAA, outline the difficulties of reconciling Federal and State aviation law.

A plane for "panty-waist," declared Stout, is what designers should develop for the private pilot of the future. The "panty-waist" design would have single control features, be small enough to put in a garage and, though small, "ride like a DC-3." Stout said there was hope that volume sales would bring the cost of an engine as low as $150. An automobile engine that can be adapted to an airplane is a possibility, Stout pointed out, and predicted the low cost plane will be a two-seater with 22-foot span, built of glass plastic and selling for $1,500 or less.

Lt. Col. Sproul, chief of the Technical Development Division of Flight Operations, Army Air Forces, predicted serious difficulties for private fliers in the CAA's VHF landing approach system and said equipment is too costly and the system hard to learn. Sproul suggested a modified Ground Control Approach radar system that would require the pilot to have only a two-way radio.

Batchelor of UPMA charged "a maze of red tape has hindered aviation development and done little to aid safety." Entering the Federal vs. state controversy, Batchelor said enforcement of safety regulations could be left to the states, along with local protection of airfields from obstructions.

Nyemaster, carrying out the Federal-state theme, suggested retention of the CAA as the main regulatory authority, with the states taking over enforcement of Federal regulations.

CAA Field Men Plan Better Service

Decentralized operations for better aviation service were planned at a recent meeting of the nine CAA regional administrators with T. P. Wright, CAA Administrator. At the meet, the regional officers said that the increasing volume of private flying and the expansion of scheduled airline operations presented many problems and required more emphasis on field operations. It was decided an office manager should be appointed in larger district offices as co-ordinator between the public and the proper technicians.

Administrator Wright stated that control towers operated by the armed services would have to close down when the services withdrew support, unless communities undertook the payment of the control towers, until sufficient funds became available to the CAA from Congress for the operation of the control towers. Immediate installation of direct-finding equipment at twelve major airports for airline instrument approaches was planned.

Arnold Asks Integrated Planning of Military and Civil Aviation

One integrated United States military organization and a national authority for civil aviation development were advocated by General H. H. Arnold in his final report as Commanding General of the AAF. Emphasizing the close connection between civil aviation and national defense, General Arnold urged that civil aviation be encouraged both internally and internationally, and all arrangements, plans, agreements and operations should be carried out with due regard for their military implications.

In developing the air forces, General Arnold said the nation must be ready to launch 3,000-mph. projectiles from true space ships capable of operating outside the earth's atmosphere.

Private Flying Advisors Assigned to Regions 3 and 4

William M. Berry in Region Four and Col. Charles E. Cox, Jr., in Region Three, have been appointed assistants to regional CAA administrators for personal flying development. They will aid in advancing non-scheduled flying in their regions, and will be the representatives of and advisors to the administrators in all matters relating to the promotion of private flying. Region Three includes Minnesota, North Dakota, Illinois, Indiana, Ohio and Kentucky. Region Four includes Texas, New Mexico, Oklahoma, Arkansas and Louisiana.

JET-DRIVEN RYAN FIREBALLS WITH PROPELLERS FEATHERED seem suspended in mid-air as they streak through the sky on the thrust of their jet engines alone. This picture shows Navy Fighting Squadron 66 flying over California terrain with the conventional propellers feathered, using only jet-propulsion for keeping aloft. —(U. S. Navy Photo.)

BOOK REVIEWS

Wings for the Dragon, *by Alice Rogers Hager, published by Dodd, Mead & Company, New York, price* $3.00.

The author, long an authority in the aviation field, has written from first-hand experience a romantic and exciting story of the air war in Asia. She also has much to say of the significance of this vast operation for times of peace to come.

The book pictures the various units in the important campaign to defend India and to keep China in the war—the Biscuit Bombers who kept the jungle troops going with food and ammunitions, the Air Rescue unit, the flying nurses, the Photo Reconnaissance and the famous Hump fliers who kept a steady tonnage of freight going into China when the Burma Road was shut off.

Aviation Facts and Figures, *Rudolph Modley, Editor, published by McGraw-Hill Book Company,* 330 *West* 42*nd St., New York* 18, *price* $2.50.

This is an Aircraft Industries Association of America reference handbook of pertinent data and statistics on aviation as a whole. Covering the entire field, the book deals with the civil and military use of aircraft, exports, service facilities, and the relation of aviation to other means of transportation. 173 pages indexed for convenient reference.

Evaluation of Effects of Torsional Vibration, *published by Society of Automotive Engineers, Inc.,* 29 *West* 39*th St., New York* 18, *N. Y., price* $5.00 *to SAE members,* $10.00 *to non-members.*

This 578 page volume presents the experimental and analytical methods used by research departments of a number of leading diesel engine manufacturers in investigating and applying means of controlling torsional vibrations. It includes numerous photographs and 134 full page drawings, charts, and graphs. It is bound in clothboard covers.

The Modern Gas Turbine, *by R. Tom Sawyer, published by Prentice-Hall, Inc.,* 70 *Fifth Ave., New York City, price* $4.00.

This is an authoritative, up-to-date and easily-understood volume which brings together an immense amount of useful information of the background, applications and possibilities of the gas turbine. Included in the text are two chapters of special interest to the aviation industry — "The Exhaust Turbo-supercharger on Aircraft Engines" and "The Gas Turbine as an Aircraft Prime Mover, including Jet Propulsion."

NEW LITERATURE

Ex-Cell-O Corporation, 1200 *Oakman Boulevard, Detroit* 6, *Michigan,* has published an informative folder describing Ex-Cell-O's facilities for manufacturing production parts and unit assemblies. Copies may be secured, free of charge, by writing for Bulletin No. 36151.

New Aviation Writers Roster Now Available

The fourteenth semi-annual roster of the Aviation Writers Association has been distributed to about 1,000 industrial concerns, periodicals, aviation associations and other interested concerns and individuals. The new roster has 110 changes of data on members, names of 235 regular, military and associate members. Additional copies may be obtained by writing the executive secretary, P. O. Box 856, Grand Central Annex, New York 17, N. Y.

WORLD'S LONGEST RANGE FOR JET PLANES is claimed for Bell Aircraft Company's new XP-83, powered by two General Electric I-40 turbo jets of unspecified power. Bell also says it has flown faster than 500 mph. and has aerodynamic characteristics suitable for speeds in the sonic range. One of the largest fighters in the air, it weighs 27,000 pounds with full fuel load and only 15,500 pounds empty. Six .50-cal. guns are in the nose and it can carry a 2,000-lb. bomb under each wing.
—(Bell Aircraft Photo.)

American Foundry Equipment Company, 555 *S. Byrkit St., Mishawaka, Indiana,* has just released a revised edition of "The American Line," a 24-page reference catalog No. 40 of their entire line of products. Also included are operating views of typical installations of these products in leading industrial plants. Copies available upon request.

The Cleveland Crane & Engineering Co., *Heavy Machinery Division, Wickliffe, Ohio,* has issued a new catalog No. 2010-B describing Cleveland Steelweld Bending Presses and Bulldozers. Details of construction are illustrated and tables of dimensions and specifications included. Free upon request.

Dun & Bradstreet, 290 *Broadway, New York* 8, *N. Y.,* is now compiling and will issue in the spring of 1946 the first issue of the United States Trade Index, listing North American manufacturers with products for export to Latin America. Distribution will be through the Dun & Bradstreet offices.

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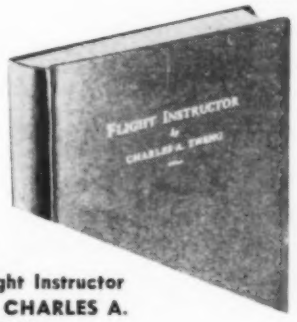
For Land, Sea and Air



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Author of "Radio & Instrument Flying," Etc.

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Price of Flight Instructor Manual $3.00. DeLuxe, as shown above, $4.00.

PRIVATE PILOT EXAMINATION: (New July 1, 1945) by Zweng. First in the field. "Multiple Choice Examinations" covering scope of written test. Only $1.00 postpaid.

MANUAL OF THE E-6B COMPUTER (New) by Allan C. Zweng. An essential text for every airman and Instructor. De Luxe Edition, $2.00.

NEW DALTON NAVIGATION COMPUTER (Type E-6B), $10.00.

AERONAUTICAL TRAINING by Zweng. (Important Notice) The New Private Pilot Examinations pertinent to Revised CAR Effective July 1, 1945, to include Parts 60 and 43 are now covered, with "typical new Multiple Choice Examinations" for both Private and Commercial included. $3.00 postpaid or C. O. D.

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CAP Uniforms Banned During Commercial Activity

Civil Air Patrol Regulations 35-4 prescribes that members are not to wear uniforms when engaged in any commercial activity, including flight instruction. Although many operators are members of CAP, when a member engages in flight instruction when in uniform, it may appear that CAP rather than the individual is so engaged, at times bringing unjust criticism on CAP. Activities which might compete with private enterprise are consistently avoided by CAP.

Vermont Wing Develops 3-Dimensional Airport Models

Three-dimensional models of airport projects have been developed by members of the Vermont Wing. Scale models can be made by aid of contour maps by cutting pieces of plywood or heavy cardboard in the shape of the contours and glueing them together to build a relief map. Plaster of Paris over this will give the desired projection. Ground areas can be tinted, and roads marked and models of houses and other structures constructed and put in place. The model airports are useful in briefing members and Cadets for flight orientation and proficiency missions for planning air-ground maneuvers.

Flight Scholarships Offered Rhode Island Cadets

The Rhode Island Wing of the Civil Air Patrol has begun a campaign to provide flight scholarships for proficient graduates of its Cadet training course, according to Lt. Col. Norris W. Rakestraw, Wing commander. The scholarships, worth $100, are to provide the Cadets with the required eight to ten hours of dual instruction, up to the solo stage. Sponsors are being sought among businessmen, firms and organizations. The instruction is paid for by these donations, and are to be given at Rhode Island air fields.

Florida Wing Plans Aerial Pony Express to Fly Aviation Writers to Maneuvers in January

Florida Civil Air Patrol wing staff officers, group and squadron commanders from twenty-two cities met in Ft. Lauderdale December 1, and formulated plans for CAP's participation in the All-American Air Maneuvers to be held in Miami January 4-6, Lt. Col. Zack Mosley, Florida wing commanded, has announced.

The state-wide meeting of CAP officers also commemorated the 4th anniversary of Civil Air Patrol which was organized on December 1, 1941, to mobilize civil airmen of the country with their airplanes and equipment for wartime duties. From the beginning of CAP most of the active missions were flown for the Army Air Forces.

According to Colonel Mosley, 500 CAP Cadets and senior officers from Florida together with several hundred other CAP'ers from other states will attend the Miami air meet. The Florida Cadets, under supervision of senior officers, will play an important role in handling over 1,200 private pilots expected to fly their private planes from all parts of the country to Miami for the maneuvers, the first to be staged since the war. The Cadets will be utilized to park and stake down arriving planes, and to handle baggage of the arriving pilots.

Other plans discussed at the meeting was the organization of an "aerial pony express" to start from New York City and end in Miami, carrying prominent aviation writers, members of the Aviation Writers Association and other aviation dignitaries. The purpose of the trip, Colonel Mosley said, would be to demonstrate the activities of the various CAP state wings and to show the newsmen the progress and development of private flying at the smaller airports in New York, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Georgia and Florida on the flight to Miami.

Major Kendall Hoyt, public relations and recruitment officer of the AAF Training Command, Fort Worth, Texas, national headquarters for CAP, at a recent meeting held here approved the aerial pony express flight. Colonel Mosley said that the tentative schedule calls for stops at the nine cities along the route with CAP pilots from each state wing flying the twenty odd passengers from one end of their state to the other where they will be transferred to other CAP planes for their hop. The planes will leave from New York City and make the following stops: Philadelphia, Baltimore, Washington, Richmond, Raleigh, Florence, Savannah, Jacksonville, Lantana and Miami.

He pointed out also that the ships would be flown by veteran CAP pilots who had thousands of hours flying the coastal anti-submarine patrol during the war.

New Exec in CAP National Headquarters

Lt. Col. James P. Glenn, formerly director of administration and services at the Fort Worth Army Air Field, has been assigned as executive officer at Civil Air Patrol national headquarters. He succeeds Wade R. Cunningham, Jr., formerly CAP project officer at Central Flying Command, who is returning to civilian life.

Much AAF Material Available to Units

The Army Air Forces, in assisting CAP units, has released a great variety of Class 26 material to CAP units throughout the country. Inventory has been taken of CAP's possession of government property, and accountability has been transferred to the AAF Liaison Officers in each State Wing. Requisitions are now going forward for shipment of the needed materials.

AAF Commander Praises Indiana Cadet Trainees

Upon completion of a two-day maneuver at Freeman Field, Seymour, Ind., Cadets of three CAP units were commended by Col. Harvey C. Dorner, commanding officer of the field, who stated that he believed future fliers would come largely from the ranks of CAP. He told the Cadets that they would be flying new planes and that it was their obligation to learn all they could in CAP so as to be qualified.

Demonstration of Safe Flying Conducted

The Rock Hill Squadron, Civil Air Patrol, recently sponsored a safe-flying demonstration at Rodney Airport, South Carolina. Planes that were stationed at the field, and the CAP barracks were open for public inspection before and after the show. The purpose of the show was to further interest in flying by boys between the ages of fifteen-eighteen.

Cadets Can Wear Civvy Overcoats

To hold uniform expenses to a minimum, overcoats and blouses are not prescribed for CAP Cadets, according to national headquarters. In adverse weather, civilian clothes may be worn over the uniform provided that no insignia are showing. The cap should be carried in a pocket, since it bears the insignia, and a civilian hat worn. The outer garments should be worn until the Cadet is in the drill hall, and then removed.

Alabama Wing In Educational Program

An aviation education program in Alabama has been started by the Civil Air Patrol, with flights already activated in nine schools. The flights have nearly forty students each. The course is similar to a regular aviation preflight course, and it carries the same high school credit as any major subject. The object of the course is to give preflight training to boys and girls fifteen-eighteen years old, creating an air-minded public and making the United States aviation industry the largest in the world.

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THIS MAGNETO is original equipment on many light aircraft engines. They are available in both the standard AM-4 type and the radio shielded model. New, as well as fully guaranteed rebuilt magnetos are carried in stock. Also, a complete stock of parts ready for quick repairs. Shielding harnesses available for any make of engine.

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By TONY HAGMANN

Dallas, Texas—*by Sandal Dailey.* Brig. Gen. Clinton D. (Casey) Vincent, second youngest general in the Army Air Forces and known to comic strip fans as Vince Casey in Terry and the Pirates, was at Love Field last month to pay tribute to the work of Major Bill Long of the Dallas Aviation School.

He presented Major Bill with a certificate of appreciation from Lt. Gen. Barton K. Yount of the AAF Training Command and the corresponding general in the Royal Air Force for Long's outstanding work in training fliers of the United States and England.

Casey Vincent, formerly chief of staff for Major Gen. Claire Chennault in China, is now head of the 32nd Flying Training Wing at Randolph Field.

Chennault, in Dallas to fill a lecture engagement, declared that the Flying Tigers also deserve the "never have so many, etc." tribute given to the RAF after the Battle of Britain. "The RAF saved a nation of 40,000,000 people, while the AVG gave new courage to 400,000,000 Chinese," Texas-born Chennault asserted.

Three Lockheed Lodestars are being put in tiptop shape at Southwest Airmotive for use by United Nations Rehabilitation and Relief Administration. They will be used to haul food and medical supplies in middle Europe. Three Noorduyns owned by D. Harold Byrd also are in the Southwest Airmotive shops. Powered by Wasp H engines, they will be used to haul oil well equipment. Work has just been completed on a Lockheed Electra for an oil company in Venezuela and another South American oil company will put a Lockheed 12 into the shops about December 15. A DC-2 for the R. M. Hollingshead Corporation, Camden, N. J., was ready for test-hopping by Pilot Tom Taylor. Southwest Airmotive executives, Winston Castleberry and Lyndon J. Dill, report that negotiations are under way to handle overhaul for one of the airlines serving Dallas.

The annual Turkey-Day classic between Texas University and A. & M. (Texas, winner) at Kyle Field was covered on the ground and in the air for the Dallas *News* by Squire Haskins, flying staff photographer-reporter. He rushed the pictures back to Dallas in one of Skyline Airport's Aeroncas, dropping the plates by parachute to a waiting Dallas *News* car. The pictures were processed in time to make the bulldog edition, on the streets shortly before 8 p. m.

Fort Worth—R. W. (Bob) Cantwell was recently elected president and Seth Barwise vice president of the newly-organized Southwestern Aviation Exposition at Fort Worth. Other officers elected were Ed Winton, treasurer, David Leavell, secretary, and Jack Rattikin, assistant secretary-treasurer.

The Exposition will be held March 8-16 at the same time as the Southwestern Exposition and Fat Stock Show. All lines of aircraft and airplane accessories will be exhibited.

Southern California—**Los Angeles**—The flying movie stars were finally tracked down at Whiteman Airpark, San Fernando, which is owned by "Marv" Whiteman, a former Dallas boy. Bernie LaBarr manages this model type field meaning planes, horses, glamour and a pretty dispatcher named "Bev" Keigher. "Don't quote the whistle," cautioned Tommy Thompson, office manager. **Oke.**

Well, Bob Cummings flies and hangars a Cessna twin there, and he's as nice as he looks. Edgar Bergen has a PT-19 he uses lots with Charlie McCarthy on the side. Bill Harman and P. Valin of Republic Studios are regulars and David Bruce who had the lead in the last Durbin picture is an eager student. The consensus is: Movie stars are danged good fliers and regular as they should be to belong to the aviation set.

Whiteman Airpark is the hobby of Marv, and he has a lovely field. Horses if you want to fly over the ground stirrup high; new hangars; lunch room; sandboxes; tie down space; fountain for water and a little deal in mind for some after-dark flying, to be announced later. Frankly it's a deal.

Central Airport—Ol' Slim Kidwell and Harry Royseter operate this busy spot and sell Culvers like black market meat would disappear in an acre of cannibals. They invited us to San Diego to a showing of the postwar planes. They had a promise of a PQ-14 to exhibit which got lost in red tape. Instead there was an old Culver with a paint job hung over from a sand storm. The citizen who did them this dirt made them very unhappy. Natch.

Checking the show we saw: Stinson, 4-place; T-Craft, 4-place; Luscombe; Ensign (which got plenty of attention); a roadable much in the prototype stage; a "Hopicopter" which was out of *this* world, and a hot dog man. Which gave us a swell idea. We went to Mexico. There ain't no nylons left in Mexico.

We returned to LA and talked about Jimmie Marshall, his race tracks, his "blower" and the fun there is to be had in Texas. So they called "By" Woodbury in Wichita, who consoled them with the news of a sure delivery on Culver in snapping-finger time. Slim and Harry are tops.

Garden Valley—This field adjoins the famous Western Avenue, longest street in the world. On it is the Garden Valley Air School, owned and operated by Leslie Byars. Les has the Swift sales going so fast he hired a new secretary to write up the orders. He has an aviation mind. Progressive? Man! His official photographer is Phil Livingston of Liv-Air Photos, Inc. Phil has probably sold more aviation pictures in one year than any aviation photo man and is one of the top four.

Les has some ex-WASP's for instructors who are doing a wonderful job. They are Jean McCart, "Scotty" Bradley and Joan Gough. Georgia Burkett was a top Army inspector and is now top dispatcher. These gals keep a lively interest in field activities and their students keep a lively interest, too. Well . . .

Natch he has men instructors. We met Bob Wilson, Meriven Babcock, Harry Downs, and the man who keeps the planes in perfect shape, Buck Roberts. To get all phases in, Florence Johnson packs the hen out of parachutes.

Solos we met were: Barbara Walker, Georgia Burkett, Jimmy Andrews, and Phil Lisman,

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son of Doctor Lisman. They have a PT. There were stacks more, but we must tell you about Pancho Barnes and space is dear.

Near Palmdale—Out in the desert is a dude airport run by Pancho Barnes. Pancho is one woman you must meet to say you've lived an interesting life. She started flyin' in the 20's and has really chalked up time since. She flew for the Union Oil Company; was a race pilot; knows everybody in the business and would do credit to a book. Her airport has been tried for size by every pilot flying North with any time to spare. She has a swimming pool, horses, deluxe cabins and we mean furnished. She has a bar about to be opened, a pip of a kitchen, and food. If Duncan Hines ever discovers this delightful place he'll go into a tizzy.

It's Oke City packing time now, and we have been honored as "consultant." So we're packing our bonnet and are going to go via DC-3, courtesy of Douglas, with Ben Howard pilot and some other beavers like ourselves.

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Oklahoma City — The National Aviation Clinic was attended by 1,000 people. If you checked off those whom we wanted to mention you'd count each one on the registration list and there ain't that much paper. So we'll hit the high spots and try to report to you that Oklahoma City was strictly Hubba-Hubba-Hubba during the three days.

Point of origin for us was LA. The famous Benny Howard was DC-3'ing with a load of Clinic bound passengers and it was a perfect flight both ways. Jimmy James and Pete Leaman flew most of the time. . . . Woody De Silva kept us in gales with his famous stories. . . . Glen Eastburn showed us points of interest (he's with the C. of C.) . . . Howard Ailor told us of the National Fly-Ur-Self system for which he's arranging some interesting new equipment (better lines than a Varga gal) . . . the Mayor of LA was aboard . . . so was Lucille Leimert, a lady reporter from the *Times*. Don Rainey with the Texas Company told us of the new Texaco plan for airport-highway service stations, a beautiful deal . . . While we're on new plans, Jimmy Dobbs has started his flight car service in New Orleans and is fixing up a box lunch deal for the private pilot, complete with hot coffee. Benny Howard gave us figures on flying we'd have given a pretty to hear at the Clinic . . . see what we mean, perfect?

First person we saw was Steadham Acker who did a peachy job of arranging this and that for the Clinic and the person we looked for all the time was Stanley Draper who sent us our invitation and gave us a little tom-tom, showing we were a member of the press. There were seventy-five press drums and one for the president of AWA, Maurice Roddy, which could really beat 'em out. Gladys Dallimore, Marion Melcher and Jane Gowdy represented the WNAA.

From Dallas: Norman and Wilson Germany, Ercoupe; L. H. P. Klotz, president, and James Camp of Luscombe; Bob Kenty, Weldon Williams, Air Associates; Buck Rowe of Gulf; Alma Daigle, Polly Sherwood and our ol' traveling companion, Sandal Dailey. . . . From Alabama: Bob Pitts, Glenn A. Scott and Edith Wideman (looking wonderful). From Houston: R. E. McKaughan, who told us to watch Ercoupe. From Fort Worth: Delegates Les Bowman, R. W. Cantwell, "Mac" McDonald, Bill Fuller. . . . Lockheed had Carl Squier, Don Marshall and Roscoe Behan . . . Walter Beech came down from Wichita; so did O. W. Wortman and O. A. Morard, Jr. . . . Carl Friedlander there, his usual smiling self . . . John W. Laister, glided around neatly, appropriately; Jack Frye gave a dillie of a speech as did John Paul Jones.

There were barbecues, parties, hangar flying groups, bus trips over the city and the sessions. They were held at the Capitol and Governor Kerr sat in. He is called Governor "Bob" and is one fine host. . . . William Enyart, president of NAA, kept things on a perfect pace while presiding . . . so did the others.

Colonel G. C. Price spoke on air safety; Welch Pogue thanked us again for his Passport; Gill Robb Wilson was our AWA breakfast companion. . . . Eugene E. Wilson spoke on aviation and public information; Dr. Frank Hart discussed aviation and schools; and Igor Sikorsky gave a talk on the helicopter. Every body liked him.

We mention parties, and there were hundreds. T. E. Braniff had the largest group of notables at his ice cream social (Oklahoma is dry) with generals and admirals and blue and brown and gold being the motif. We sat at the foreign gold braid table by the request of Major W. W. Brown who kept them on schedule, and learned something about the Russians. They all fly, almost, and they can't speak English very well if you ask the wrong questions.

Hi-lights . . . Ken Boedecker took our picture . . . Al Bennett smiles nicely . . . Ed Travis got cornered here and there . . . Tex Lagrone waited the longest at the Iksa Helih Homo pow-wow . . . Jimmy Mattern flew by a minute . . . Blanche Noyes looked fine . . . The Stearman brothers were there . . . the P-80 too . . . the new Swift . . . C. L. Willis, Perry Hodgen and Bill Berry of the CAA, 4th region . . . the fellow who gave us a package of Chesterfields and told us about J. A. McCartney's Fairchild 24 and we can't remember why . . . the lovely transportation and press room (J. C. Grimes beat that out) . . . the Mayor of Oke City who was Oakey Doakey . . . Jack Hull who beavered and Frank Buttram who gave a barbecue . . . and all of Oklahoma City who are all Hubba-Hubba-Hubba just like we said.

We are sorry about three things on this convention. It was too short, too dry a la Oklahoma (and we don't mean the speeches), and too much fun. In Oklahoma they really know how, AND HOW. And, in 1946, you must be there.

Birmingham, Ala.—*by Edith Wideman.* We departed from Birmingham, for the National Aviation Clinic in Oklahoma City, on the heels of a jam-up Aero Club program on aviation education. Dr. Edgar Fuller, acting head, aviation education division, CAA, spoke on the work that had been done during the year in this important phase of aviation.

At Oklahoma City we were shouting in loud tones that we were from Birmingham, Alabama. Why? Because so was Clinic Director Steadham Acker. What a success! It's always fun to attend a meeting being directed by the Great "A" outside of the hometown city limits, or the police jurisdiction thereof. That way we didn't work as hard but devoted more time to being entertained and being a guest. And this, too, Oklahoma City knew how to do in real honest-to-goodness style. Between speeches on feeder airlines and charter service we dashed into the press room to find sandwiches and coffee being served by dimply Senior Scouts of the Boy Scouts. This we could not resist. I shook hands, had coffee, and rode busses with a representative group from the back home section. Julian Freeman, the Shell Oil Company aviation representative in our district and Harvey Perkins, superintendent, airports, CAA Region 2, flew in together from Atlanta. Frank Brewer of Birmingham and further of the Brewer Trophy fame was there. We caught our first glimpse of Asa Rountree in civilian clothes—his wife, Blanche Noyes, was there, too. The Great Bevo Howard, the notable from the Carolinas, told us he was going to a Pow Wow that night—well, weren't we all? St. Pete's Clarence Ludwig and Harry Playford flew in via twin-engine Beech. The Feeder Airline Association was well represented by Jack Mitchener, president, and Tom Davis, vice president. Dick Brown insisted that while

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he was more recently from NY he was still a Southwesterner.

Mississippi came in for airport representation through the appearance of Bub Pepper from Greenwood. Carl Clifford, private flying specialist, gave Region 2, CAA more representation by his presence. Tennessee was there in a big way—Herbert Fox, director of Aeronautics; Mayor Cummings of Nashville; Aviation Education Expert Dr. Gilmore—"Cumulus" to some—and so many, many more and so much more happening that come one day next January the story shall be fuller.

Kansas City, Missouri — *by Marion Melcher.* Going down to the airport to see the new Swift hangared at the Kansas City Flying Service on municipal airport, I saw two giant Budd planes on the field. Plain to see they were part of The Flying Tiger Line. Bob Wertz, one of the Tigers back from the war, was standing nearby. Would I like to see the inside of the plane? Would I! So I took that high step up, marveled at the myriad controls of this converted Navy plane, and crawled on back to see how it was being insulated to protect cargo . . . flowers going eastward, live chicks westward. Those boys cooked up a grand freight idea, and personally I hope other concerns in Kansas City fall in line with Katz Drug Company, who recently used the speedy air freight for delivery of a shipment of their material.

The Swift is a little beauty. Neat as a lady, it was most fitting that Connie Caraway should be the first woman to fly this plane. Connie came back starry-eyed and full of praise of the plane's fingertip control. The day after the flight, Connie brought a group of pilots (all members of WNAA) down to inspect the plane, and we hear some pictures were snapped of the feminine fliers by Sol Studna.

Our city has a philharmonic orchestra that's one of the best; it's under the able direction of Efrem Kurtz. Can't always attend the music hall sessions so here's one grateful listener who appreciates Aireon Manufacturing Company's sponsorship of a twenty-week series of half-hour concerts by the orchestra over KMBC each Thursday evening at seven.

War birds are resting on the airport temporarily near the Morris-Janssen Aircraft Sales on Richards road. The wartime trainers are being sold without any warranty by the RFC "except as to the accuracy of the description of same." The planes range from $8,500 to as low as $750.

Just try not to look up when seventy-nine carrier planes zoom over you! Kansas Citians watched the aerial display before Navy Day. The planes circled the city three times and were off for a night's stay at the Olathe base where they landed as though coming in on a carrier.

Ira B. McCarty, Pacific war correspondent for the Kansas City *Star*, told members and guests at the dinner meeting of the Kansas City Unit, WNAA, that "the big future of civilian aviation lies in the high school students of today, not with the fliers trained in World War II." His rapid-fire talk was specifically slanted toward WNAA and what it could do in the promotion of aviation.

Blanche Noyes, of the CAA, was a Kansas City visitor and several members of WNAA met with her to discuss promotion of airmarking in this area.

Among the WNAA members attending the National Aviation Clinic in Oklahoma City last month were Helen Stewart, president of the local unit, Neva Rea, national board member, Eunice Mecaskey, national WNAA program chairman, Esther Wirthman, WNAA governor of the 5th region, Helen Sparks, unit membership chairman, and your correspondent, as editor of *Skylady*.

Lower Insurance Costs

Reductions in aircraft liability insurance rates for private flying, in some cases as much as 50 per cent, are predicted for the coming year by G. L. Lloyd, general manager of Aero Insurance Underwriters. Increased non-scheduled operations, almost double this year's volume, justify a substantial increase in volume of premiums, declared Lloyd.

"We have long known that insurance is an appreciable factor in the cost of operating an airplane," Lloyd said. "Unfortunately, however, except in cases where there was sufficient volume, we were not in a proper position to reduce rates; but the picture is about to change for the better." He gave no details.

New Fire Extinguisher

The B. F. Goodrich Company has developed a new carbon dioxide hand fire extinguisher, meeting full approval of fire underwriters. It holds four pounds of carbon dioxide. A horn swivel raises and lowers to position needed.

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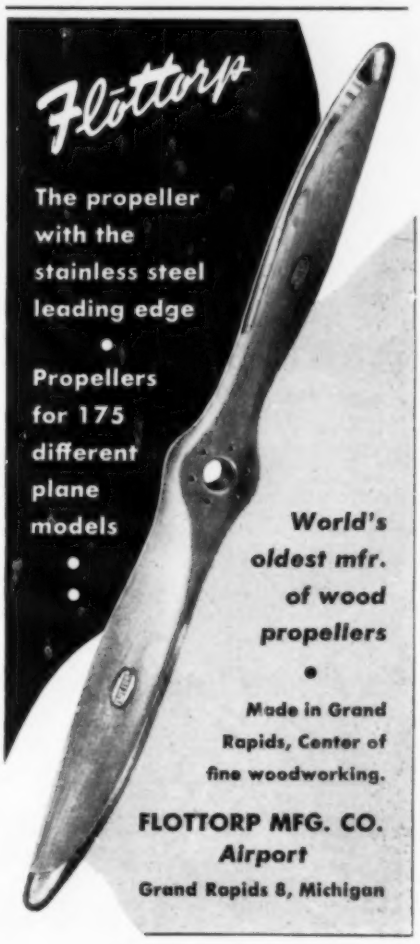

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Vets at Embry-Riddle

Miami, which was a flying training center during the war, is continuing to be a training center for many veterans returning for further education. At Embry-Riddle School of Aviation, a new class has enrolled thirty-one veterans, with a large percentage of students hoping to establish their own businesses in some field of aviation or radio.

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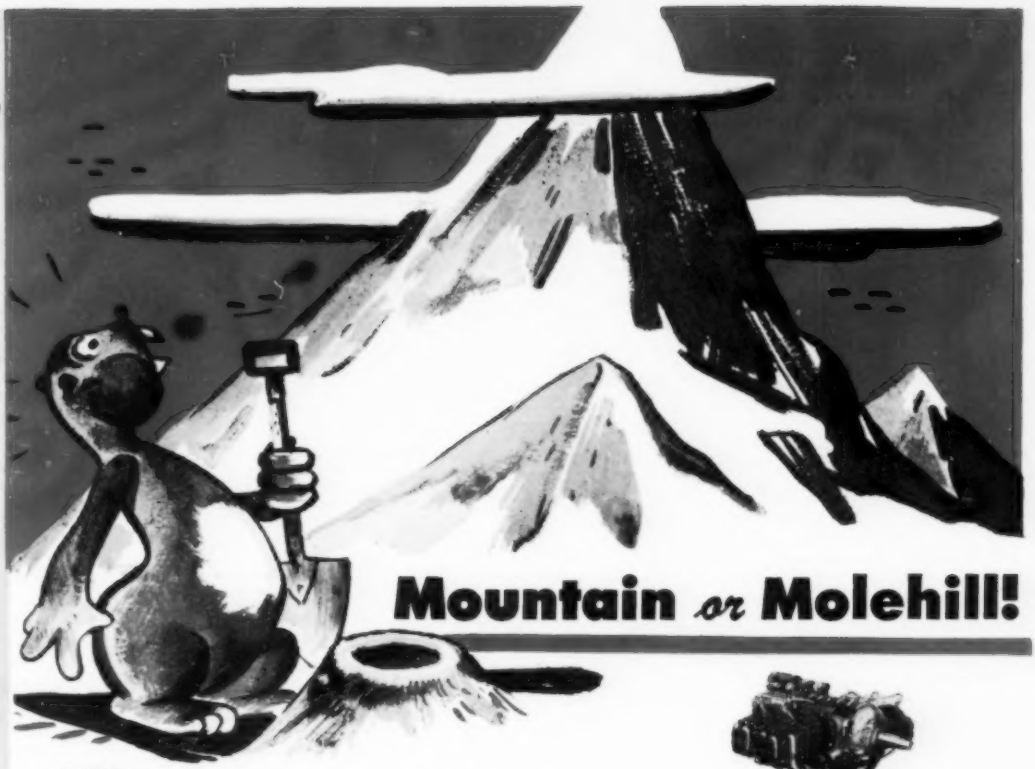

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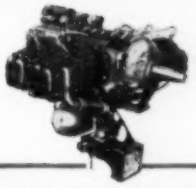

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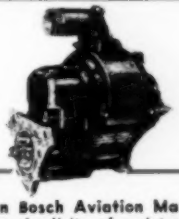
Southwest Airmotive, distributors for Continental Engines, maintains complete stocks of engines and parts and offers quick overhaul service. Red Seal "C" model is shown—famous for power, smoothness and economy.

GOODRICH AIRPLANE TIRES
The Goodrich low pressure tire was developed to meet the need for extra cushioning, extra strength and durability for landings. Ribbed tread is illustrated, the conventional sizes available here in smooth and ribbed treads.



American Bosch Aviation Magnetos
Designed for simplicity of maintenance and overhaul—inspected and tested in conformity with U. S. Government specifications. Stocked here for 7, 9, 12, 14 and 18 cylinder engines, the 14-cylinder MJN model is shown above.

ECLIPSE

Willard STORAGE BATTERY

SHELL

RANGER ENGINES

LOCKHEED

PRATT & WHITNEY U.S.A. DEPENDABLE ENGINES

KOLLSMAN PRECISION AIRCRAFT INSTRUMENTS

GOODYEAR

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ESSO

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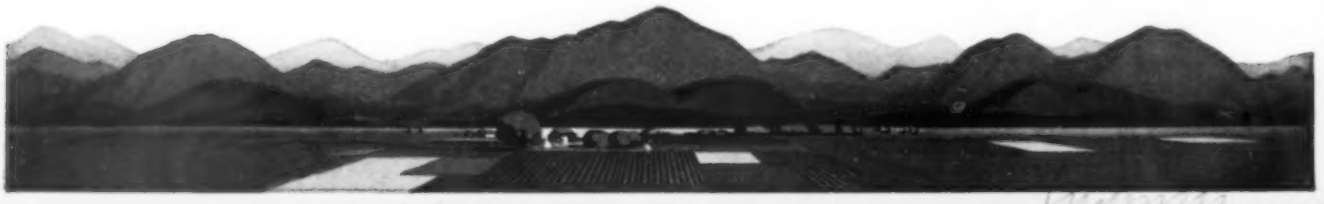
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